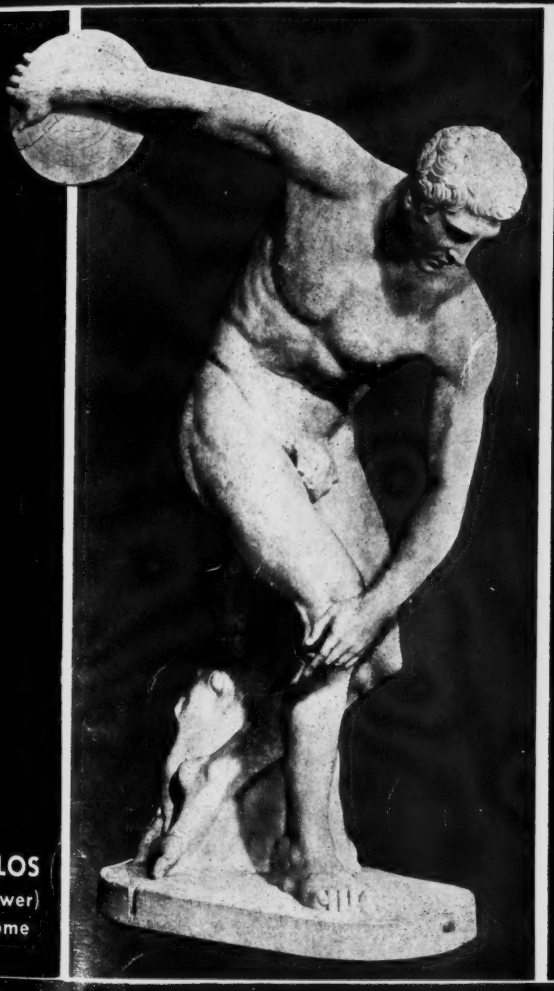
Soap



OBOLOS
os Thrower)
ican, Rome

Enduring QUALITY

WHEN you incorporate Ungerer perfuming materials into any of your Soap products, you are insuring odor persistence. The enduring quality inherent in all Ungerer products guarantees that result. Our strict adherence to these quality standards suggests in many ways the classic sculptory of ancient Grecian times, which was in that age a leading exponent of Enduring Quality.

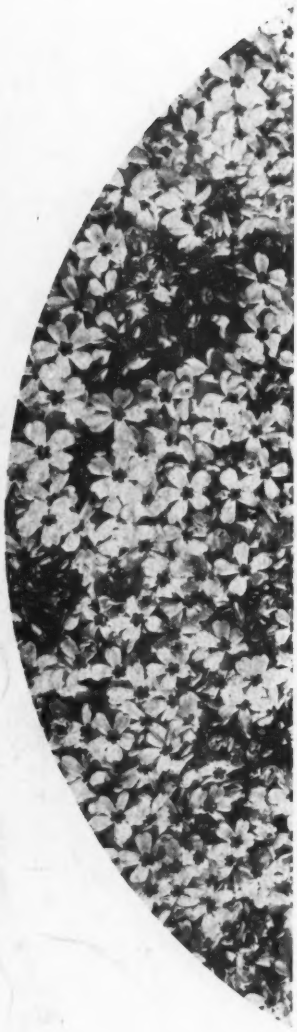
•

UNGERER & CO.

13-15 WEST 20th STREET NEW YORK

and Sanitary Chemicals

Soap Perfumes



ODOR is perhaps the most important factor in the successful merchandising of toilet soaps. Competition being what it is today, the up-to-the-minute soap manufacturer is insisting on the very best possible perfume available, at a price within reasonable limits.

Our laboratories, based on the long experience of our principals Chuit Naef & Cie., Geneva, Switzerland, are turning out remarkably fine floral and bouquet odors for toilet soaps at surprisingly low figures.

Included in our most recent successful developments are GARDENIA, JASMIN, GERANIUM, LAVENDER, LILAC, FOUGERE, BOUVARDIA, MUGUET, ROSE, DAMASCENA, and numerous bouquet types.

Samples and Quotations on Request

Firmenich & Co., Inc.

135 FIFTH AVE., NEW YORK

CHICAGO OFFICE: 844 NORTH RUSH STREET

1 EASY STEP

ADDS LASTING PERFUME . . . . . AND COLOR TO PARADICHLORBENZENE AND NAPHTHALENE

COLOROMES

first introduced by Felton Chemical Company, are making phenomenal contributions in increased sales to a large number of manufacturers of deodorant blocks and crystals.

They economically add lasting fragrance and attractive color in one easy step and give your products the SALES APPEAL that results in ready consumer acceptance!

Coloromes are available in a large assortment of popular perfumes and colors, as well as perfumes without color, if desired!

Write for samples now!

FELTON Quality

FELTON CHEMICAL COMPANY, INC.

603 Johnson Ave., Brooklyn, N. Y.

Manufacturers of AROMATIC CHEMICALS, NATURAL DERIVATIVES, PERFUME OILS, ARTIFICIAL FLOWER AND FLAVOR OILS.

STOCKS IN PRINCIPAL CITIES

Boston, Mass. 80 Boylston St.
Philadelphia, Pa. 200 So. 12th St.
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Chicago, Ill. 1200 N. Ashland Ave.
St. Louis, Mo. 4910 W. Pine Blvd.
Los Angeles, Calif. 4727 W. Washington Blvd.
San Francisco, Calif. 707 Kohl Bldg.

Soap and Sanitary Chemicals

Volume XIV
Number 11

NOVEMBER
1938

SANITARY Products Section, which forms a part of every issue of SOAP, begins on page 71.

Contents

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YOUR LINE

Now it is possible for you to build up a sales following with products identified exclusively with YOUR NAME!

Buy the Clifton Quality Line and repack it under your own name. Our attractive labels and leaflets will stimulate your sales into the Profit Division. (The Clifton Line has been doing just that for wide-awake jobbers since 1914.)

And our prices must be quoted to be enjoyed.

featuring

★ **QUALITY**
★ **PRICE**
★ **SERVICE**

CLIFTON CHEMICAL CO., INC.

246 FRONT STREET NEW YORK, N. Y.

Semi-Castile Liquid Soap	Pine Scrub	Furniture Cream
Foamwel Liquid Soap	Deodorizing Sprinklets	Insect Killer
Liquid Soap Base	Oil Soaps	Coal Tar Disinfectant
Liquid Soap Dispensers	Mopping Varnish	Pine Disinfectant
Cresolene Disinfectant	Rubless Wax	Theatre Spray
Bar Oil		

HELP FOR SALES

LADIES' DELIGHT — Your feminine customers are *not* wrestlers nor are their boudoirs equipped with Stillson wrenches to remove balky closures. The Anchor Beacon Cap responds *every* time to the simple quarter-turn of the gentlest wrist. The stickiest, gummiest product never affects Beacon's easy-on-easy-off efficiency.

SMOOTH SLEEK SURFACES — Not a curlicue, not a thread, not a knurl mars the simplicity and dignity of Anchor Beacon Cap exteriors. Just one single circle around the top to relieve the monotony . . . and to provide a challenge to any designer to achieve a noteworthy package effect.

BEAUTIFUL BUT CLEVER — The inherently simple and beautiful lines of the Anchor Beacon Cap can be enhanced by a single deep rich color . . . or may be artistically embellished with chaste decoration or lettering. But beneath that loveliness is a sound scientific sealing principle—an air-tight seal that protects the product against leakage, evaporation or deterioration.

THIS LUG IS OPEN CHAMP — The secret of the Beacon Cap's always easy opening is the little lug pointed out above. Based on the famous Amerseal lug construction, it has made this type of closure the first choice of the great majority of consumers. The Beacon offers not only user approval, but fast and dependable service on the production line.

ANCHOR HOCKING

THE IDEAL SOURCE FOR GLASS CONTAINERS, CLOSURES AND PREMIUM WARE

Anchor Hocking Glass Corporation, Lancaster, Ohio, CONTAINER & PREMIUM DIVISIONS
Anchor Cap & Closure Corporation, Long Island City, N. Y. and Toronto, Canada, CLOSURE DIVISION.

UNCOMMON CONTAINERS— Every pharmaceutical manufacturer knows these practical, useful, narrow mouth amber containers. Ordinary in shape, yes, but not in the quality that Anchor Hocking puts into them, their strength, clear color and high luster. Made in 19 sizes from half an oz. to 128 oz.

MODEL MODEL MAKERS— These sculptors in wood bring to life the cold lines of the blue-print. With their models Anchor Hocking carries on extensive tests for appearance, shipping and packing ability, display and general all-around practicality. That's why all Anchor Hocking containers are not only good looking, but good, sturdy salesmen as well.

IMPORTANT PREMIUM NEWS FROM THE LONE RANGER— Anchor Hocking has the exclusive rights to the Lone Ranger, Tonto, his Indian Guide, and his horse Silver for all glass container and premium ware. Already loved by millions, the Lone Ranger is daily adding thousands of new friends by radio, movies, and the comics. Here is a walloping, two-gun, rip-snorting promotion idea for wide awake merchandisers. Illustrated are four Lone Ranger items . . . and we can supply *everything* in the Lone Ranger series, including all containers, jars, tumblers or bottles, all kinds of table or beverage ware of stock or special design, in single pieces or in sets. Any Anchor glass container closure can also be furnished with Lone Ranger decorations. Write or wire at once for samples and we will show you how you can put gold in your purse with HI-YO SILVER.

PHOSPHOTEX is focusing widespread consumer interest on a new type of soap—one that gives twice the suds, speeds up cleaning action, results in whiter, brighter washes, and is non-injurious to washable colors. Such a type of soap, containing Phosphotex, has a marked superiority over previous products.

PHOSPHOTEX is the Monsanto trade-name for tetra sodium pyrophosphate. It is a detergent aid of remarkable qualities, embodying both low pH value together with high emulsifying and water softening properties. Soaps containing Phosphotex have proved they do a better, more thorough cleaning job, with the result that they are rapidly becoming best sellers.

PHOSPHOTEX is in the spotlight of consumer interest. Complete information and samples for application in *your* soap products will be sent promptly on request. If you wish, a Monsanto application engineer will be glad to assist you.

A newcomer to the soap industry is Monsanto's PHOSPHOSOL (tetra potassium pyrophosphate). Having the same general qualities as Phosphotex, PHOSPHOSOL also affords extremely high solubility for products where such a degree of solubility is desirable. A letter will bring further information and samples.

Monsanto Chemical Company

St. Louis, U. S. A.

New York • Chicago • Boston • Birmingham • Charlotte • Detroit • Los Angeles
San Francisco • Montreal • London

The perfuming of soap is a highly technical and specialized art in itself. There are many accomplished perfumers who are able to create outstanding perfumes, yet frequently they are not fully acquainted with the complications and reactions arising when these perfumes are incorporated in a soap base. It is a not uncommon contention that a perfume will be successful in soap if it holds up well in powders and creams. Yet, this is no criterion, as soap is unique in its effect upon the components of a perfume.

In making fine perfumes, the artist works with a practically odorless diluent and can be reasonably sure that he will get the full value out of everything he puts into his formula. Some valuable and costly oils lose their beauty and are completely wasted when used in soap bases. In order to produce the finest and most effective perfumes for soap, it is of primary importance that the perfumer know the effect of all the available aromatic materials in the many types of soap bases.

This knowledge can only be acquired through many years of research and experience in this direction. With these prerequisites behind us we are fully qualified to successfully produce perfumes for soap. van Ameringen-Haebler, Inc., 315 Fourth Avenue, New York City.

"Sorry, Officer, I was thinking of the time and money I could save by using Niagara

Carbonate of Potash"

P.S. You'll save yourself time and trouble using Niagara Caustic Soda and Caustic Potash, too.

Niagara
ALKALI COMPANY
42nd STREET, NEW YORK, N.Y.

Affiliated with Electro Bleaching Gas Co.
Pioneer Manufacturer of Liquid Chlorine

HIT OR MISS METHODS . . .

HIT or miss methods of selecting soda ash, caustic soda, caustic potash, and other alkalies you require for soap making have gone out of date.

Today, there are five important requirements to be considered when you place your order for an alkali to be used for soap manufacture or soap repackaged products . . .

QUALITY — Solvay Alkali Quality is assured. As the oldest and largest American producer of alkalies, Solvay Alkalies have consistently established *the* standard for high quality in the alkali industry.

FORM OF PRODUCT — The right type of product for *your* job. Not a compromise. Solvay Alkalies, where it makes a difference, are produced in various forms to meet your specific requirements. Send for the Solvay Products Book for information on sizes and strengths of Solvay products.

UNIFORMITY — No hit or miss methods here—Solvay Alkalies are always as specified. They help you maintain consistently high production standards year in and year out.

DISTRIBUTION — Three huge Solvay Alkali plants located in the heart of important industrial areas, and many local stock points assure efficient routing and prompt deliveries of all Solvay Alkalies.

SERVICE — Have you a problem concerning the use or handling of alkalies? . . . Solvay Technical Service Division, maintained to help you, is at your service!

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by The Solvay Process Company

40 RECTOR STREET NEW YORK, N. Y.

BRANCH SALES OFFICES:

Boston	Cincinnati	New Orleans	Pittsburgh
Charlotte	Cleveland	New York	St. Louis
Chicago	Detroit	Philadelphia	Syracuse

SOLVAY SALES CORPORATION, 40 Rector Street, New York, N.Y.

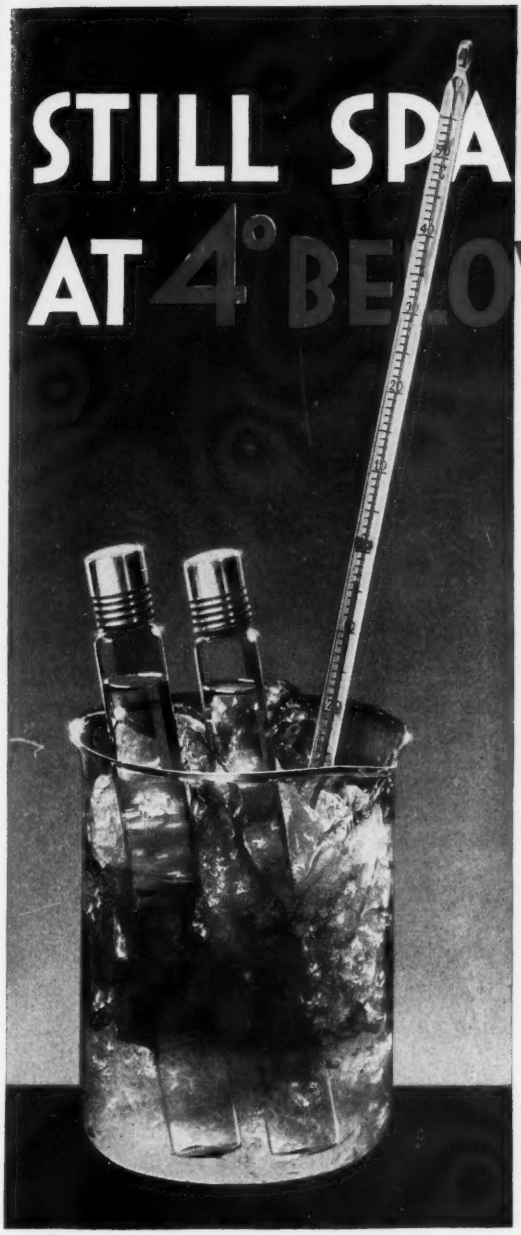
Please send me a copy of the Solvay Products Book which will give me complete information on all Solvay Products.

Name.....

Firm.....

Address.....

City..... State..... AJ-11



STILL SPARKLING CLEAR AT 4° BELOW ZERO C.!

TRY this test on the liquid soap you are now buying -- particularly the concentrated (40%) which you are using as a base to produce liquids of lower soap content.

"BUCKEYE" and "GEM" concentrate liquid soaps remain absolutely clear at temperatures below zero C., lending themselves perfectly for use at all temperatures as a base in producing liquids of lower soap content.

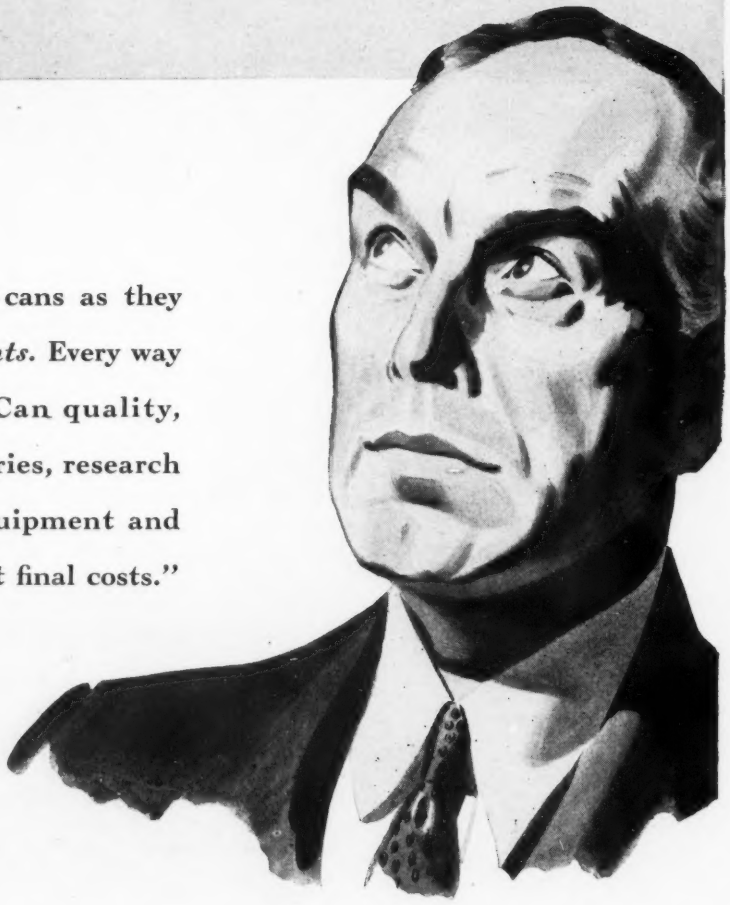
Just dilute them with distilled water --- no need whatever for any filtering.

Send for samples and prices. No obligation.

THE DAVIES-YOUNG SOAP CO.
Dayton, Ohio

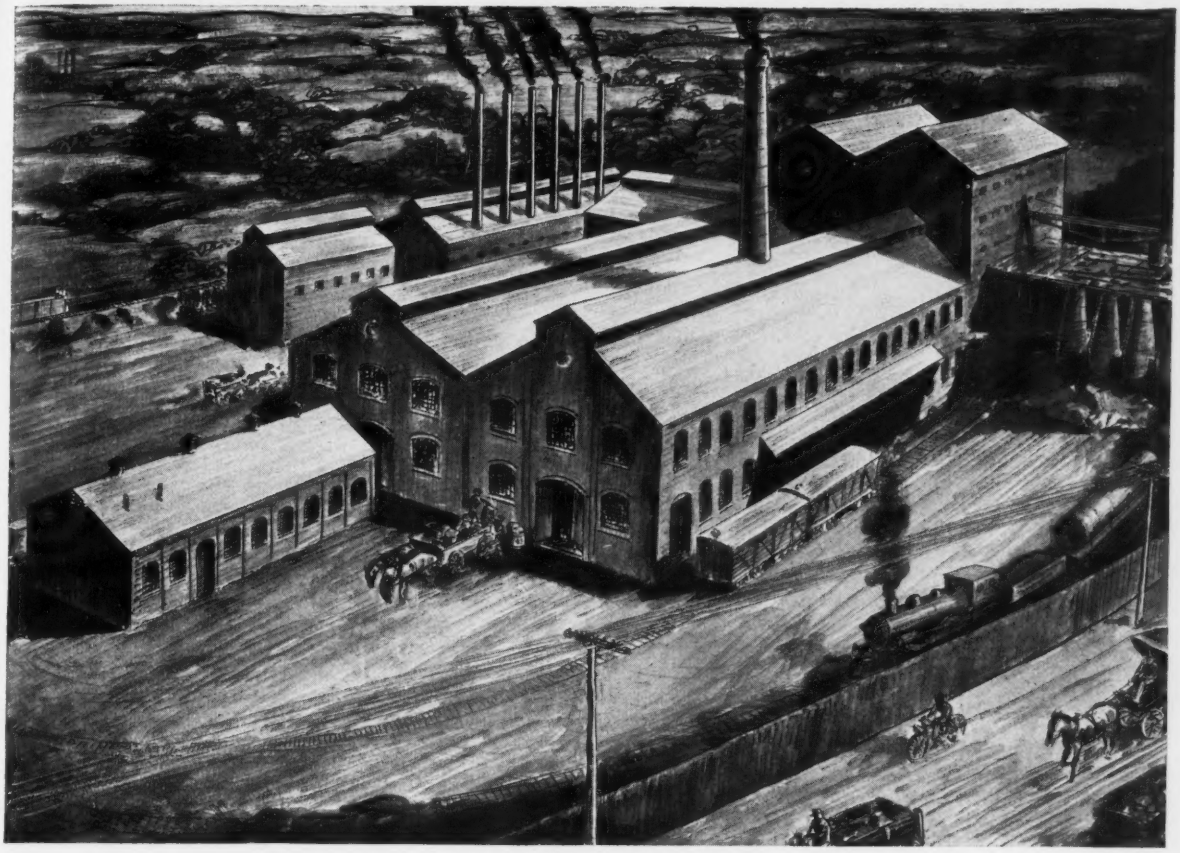
"BUCKEYE" CONCENTRATE and "GEM" CONCENTRATE Liquid Soaps

"Anything can be bought for less . . . even cans



. . . but it's the cost of cans as they *leave* my plant that *counts.* Every way I figure it, American Can quality, their dependable deliveries, research cooperation, closing equipment and service help us get lowest final costs."

CANCO AMERICAN CAN COMPANY, 230 PARK AVENUE, NEW YORK, N. Y.



VIEW OF ORIGINAL PLANT IN 1900

Through The Centuries With Alkalies

HERE in 1900 began production of COLUMBIA Soda Ash. Quickly the plant grew. In 1901 COLUMBIA Caustic Soda was first produced. Important by-products further contributed to rapid growth. In 1936 came the first production of COLUMBIA Liquid Chlorine. The same year saw the development of COLUMBIA Sodium Bicarbonate. Other Alkali and Chemical Products are supplementing this line as fast as man's inventive genius discovers better ways to fill man's ever-increasing needs.

OUR PART is humble; our products unromantic. But in the making and processing of many of the oldest, most useful, most necessary commodities on earth they play a vital part. Upon the quality of our output depends the quality of innumerable productions. Glass is clearer; paper is whiter; textile fibres are finer; even the bread we eat and the water we drink are purer, because of the way we do our part. So, accepting this responsibility, we serve the needs of industry with faithfulness and zeal, vigilantly maintaining exacting standards which permit no compromise with quality—and never will.

COLUMBIA

SODA ASH
CAUSTIC SODA
SODIUM BICARBONATE
MODIFIED SODAS
LIQUID CHLORINE
CALCIUM CHLORIDE

THE COLUMBIA ALKALI CORPORATION
BARBERTON • OHIO

NEW YORK · ST. LOUIS · CLEVELAND · CHICAGO · PITTSBURGH · MINNEAPOLIS · BOSTON · CINCINNATI · PHILADELPHIA

"Beauty," SAID MRS. STIGGINS, *"Is a powerful persuader"*

(From an old Kentucky story.)

It is indeed. And it is as potent in industry today as it has been for ages in love and in art.

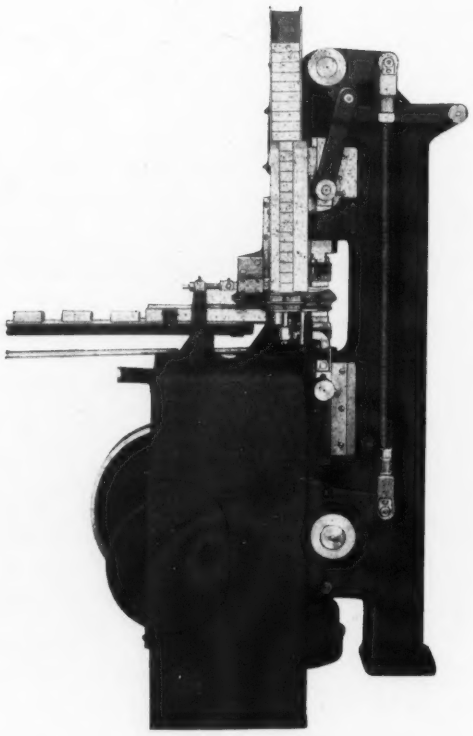
Appearance determines preference in the marts. Producers realizing this, are constantly seeking improvement in design and in the finish of their wares.

However good in other respects, no article of commerce can dispense with the good will that goes with good appearance.

A cake of poorly pressed soap may lather as freely as any other, but it will not sell as fast. Nay, not half as fast as a properly pressed perfectly finished cake. One with the beautiful finish produced only by

JONES NEW TOGGLE PRESSES

Old worn out presses and battered dies produce unsightly, unsalable soap.



Type ET Toilet Soap Press

R. A. JONES & COMPANY, Inc.

P. O. Box 485 **Cincinnati, Ohio**

The Standardized *Constant Motion Cartoner* packages, bottles, jars, tins, collapsible tubes and many other articles. It feeds, folds and inserts direction sheets and corrugated board liners with the loads.

As the Editor sees it..

FACED as it is with a veritable avalanche of new state legislation in 1939, it behooves industry to look about now and decide in a general way what it will do when the avalanche arrives. If predictions come true, next year will see forty-four state legislatures and the national government give birth to the greatest crop of restrictive laws and regulations in history. Laws ostensibly designed to protect the public health, but actually to soak out-of-state manufacturers as much in fees and taxes as the traffic will bear, are expected to lead in the 1939 legislative vogue. Many so-called food-and-drug acts, trade-mark laws, and the like will include in their scope certain soaps, soap products, disinfectants, and other sanitation products. There will be restrictive laws which will conflict with each other and with federal legislation. There will be hold-over bills from previous sessions already outmoded,—and there will still be old laws on the books of some states which were long since obsolete, but which remain to complicate the situation.

All this prospective jumble of legislation bids fair to produce a situation in which the manufacturer doing an interstate business will as usual get it squarely in the neck. What to do about it? Well, first of all, not merely to oppose everything of a legislative nature which arises. Legislatures have come to expect this and to discount it. In the case of food-and-drug bills for example, manufacturers could suggest as a substitute for badly conflicting bills that any new law might exactly duplicate the federal law,—or that state laws are unnecessary now that we have a new federal law. In the case of state trade-mark laws, we can suggest nothing constructive. They are a racket of the first water,—legalized blackmail which puts the Dutch Schultz mob to shame. And product registration laws are little better as they are enforced today. We can see little to do but to fight them tooth-and-nail as just another bad smell from the stink-hole of political expediency.

But as a matter of general procedure, we suggest that industry will get a lot further by attempts at constructive amendment of proposed legislation than by blind opposition. And above all, we remind that an early start sometimes means success,—at the very first hint that a new bill impends,—and also that kind words pay larger dividends than a sharp tongue especially in dealing with politicians.

OF ALL the legal cases which various soap companies have fought through the courts in recent years, the trade mark cases are to the general watchers in the soap industry the most confusing. The confusion seems to revolve around the point that, win or lose, each company seems to go on using its disputed marks. A present case in point is the action involving Procter & Gamble and Prescott and turning on respective use by the two companies of the trademarks "Chipso" and "Chase-O." It was over five years ago that the Commissioner of Patents held that "Chipso" was deceptively similar to the Prescott mark and ruled that the "Chipso" registration should be cancelled. Yet ever since then P & G have continued to use this mark and there is every likelihood that they will continue to use it.

The explanation is that while the Patent Office controls the right to *register* a mark, they have nothing to say about the right to *use* a mark. Right to register a mark may be cancelled if the patent tribunal feels that the prerogatives of a previous registrant of a similar mark have been

interfered with. Right to use a mark, however, can be withdrawn, only after the highest courts have determined that such use constitutes unfair competition in trade.

In the present case the Prescott company sought to prove the existence of such unfair competitive conditions in an action started in the New Jersey District Court slightly over two years ago. The ruling of the court was that the two marks "Chipso" and "Chase-O" were not deceptively similar, and the court refused to restrain Procter & Gamble from use of the former mark. An appeal from this decision was filed by the Prescott company in the Circuit Court of Appeals, Third Circuit, which is still pending. The final decision in this action will really determine whether Procter & Gamble may continue use of its mark.

THE best barometers of the nation's business are not statistical indices compiled by learned economists, says a Cincinnati columnist, but rather the reports of "pitchmen,"—the shrewd street salesmen and hawkers who function as traveling business barometers. Latest reports from these sources indicate that farmers have plenty of money and that conditions are for the most part better in smaller towns than in the larger cities. Add to this the reported accounts of substantial reemployment by major industries, and the generally more optimistic attitude taken by smaller business men, and we have every indication that the recent recession is a thing of the past. With a program of rearmament ready to pour more millions into industry, the boom seems once more to be on.

A LARGE power laundry recently distributed to its customers a glassine envelope containing a small sample of tallow chip soap with the notation on the outside that "this 100 per cent pure white tallow soap is the only kind used for our better laundering." Our reaction to the advertising stunt was distinctly negative. In the first place, the odor of even a real good tallow chip,—and this is a good one,—is not particularly inspiring. People are not used to the somewhat fatty odor of a strictly unperfumed soap. They are accustomed to some other odor in the soap, some sort of perfume, even though they may not recognize it as such. Had it been very slightly perfumed with some "clean" odor, the effect would have been much better. Too many people associate the odor of unperfumed soap with that of bed linen, towels, etc. where the rinsing has been insuffiicient or where excessively hard water has been used. In this case the laundry was, in our opinion, too honest in its advertising to an ignorant public. The stunt would have been better left undone.

RECENTLY we received an advertisement from a manufacturer for insertion in *Soap*. We had the temerity to question the copy which to the best of our limited knowledge did not appear altogether accurate. Now, let us explain here that such conduct on the part of the vast majority of trade publications is entirely unorthodox. At the sight of a paid advertisement, trade paper publishers have for years and years fawned upon the prospective customer, and with complete humility, prostrated themselves flat upon their bellies.

Even to question an advertiser's copy, let alone censor it, is simply not done except by a limited few. It's bad business. The prospective advertiser gets his dander up and refuses to advertise at all. Among certain firms who advertise in many trade papers and who are educated to complete humility on a wholesale scale, the smallest display of independence quickly brings the executioner into action.

And this is just what has happened to us. But we did not mind so much that the order was cancelled. What burned us up is the fact that we were in addition accused of being influenced by the propaganda of one of our accuser's competitors. Whether he just said this because he was sore at us for questioning his copy, or whether he really believes it, has us puzzled. Nevertheless, we still to the best of our ability insist upon being a little bit choosey about advertising copy.

Glycerine RECOVERY COSTS

By Alan Porter Lee

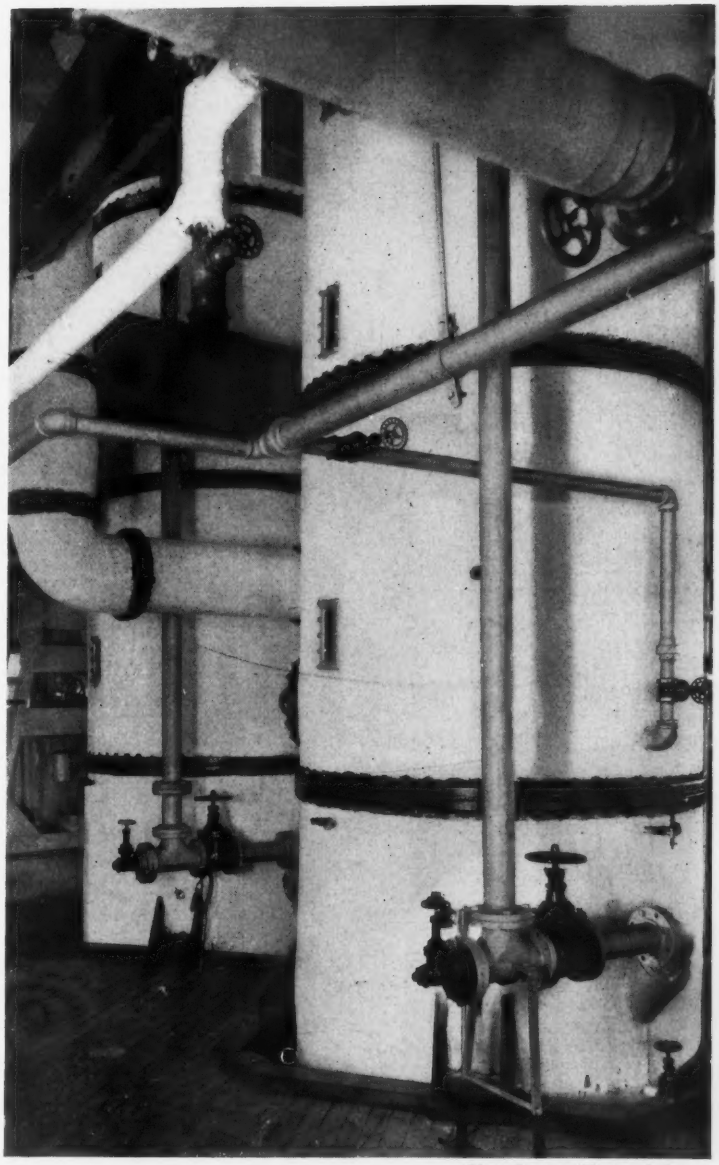


Photo Courtesy Wurster & Sanger

THE recovery of glycerine in marketable form from spent soap lyes is of great importance to soapmakers, large and small, more particularly in times when glycerine commands higher prices than at present. Even under such conditions as now exist, however, with the tallow and oil markets (and the glycerine market) at low levels, a definite return is generally obtainable from glycerine recovery. Small soapmakers find themselves in a difficult position in periods of low tallow prices, because such periods inevitably mean low soap prices, and also mean that the small manufacturer is forced to avail himself of every possible expedient to reduce his operating costs to a minimum.

The large producer, who is already equipped with glycerine recovery apparatus, is enabled to credit the value of recovered glycerine against operating costs and to reduce the sales price of his finished soap accordingly, permitting him to maintain his plant volume without operating at an actual monetary loss, or at worst, to keep such loss at a minimum. The small soapmaker, on the other hand, who does not recover his glycerine, is confronted with the problem of reducing soap prices drastically in order to maintain his volume, and if he is wasting his recoverable glycerine values, may find that he is maintaining volume at an actual loss. He becomes then a "marginal producer" and will be inevitably confronted with the choice between reducing operating costs in some manner or closing down his plant, temporarily or permanently.

With these conditions in mind, it is considered that the following analysis of the costs of glycerine production will be of interest. The computation is based upon a plant production of moderate size, the plant size being expressed in terms of soap materials consumed rather than of soap produced, in order to allow for production of different types of soap, of widely varying moisture content.

As the size of the soap plant increases, the volume of spent lyes

to be handled increases and the cost of glycerine recovery will decrease. In plants of smaller volume than that discussed herein, the unit cost of spent lye evaporation will be somewhat greater, because of higher ratio of plant investment to unit output. This increase should be offset partially, however, by reduction of superintendence and laboratory costs, which are usually of smaller amount in the small factory.

Every soapmaker is in position to obtain an analysis of spent lye treating and glycerine recovery costs as applicable to his own operations, whether or not he recovers glycerine as part of his current operations.

Such analysis will enable the small soaper to determine whether it will be profitable for him to recover his glycerine and will reveal to the larger producer whether his glycerine recovery costs are in line with those of others or are excessive, because of inadequate or antiquated equipment or because of lack of suitable chemical control or for other reasons.

The following Production Cost Analysis is based upon normal operations in a medium-sized soap plant consuming daily 30,000 lbs. (one-half tank car) of average soapmaking material such as prime tallow and Manila type coconut oil.

Data Assumptions

1. Percentage of glycerol recovery (in weak lyes) will average 10.5 per cent of weight of soapmaking materials, 3150 lbs.
2. Average concentration of glycerine in crude weak lyes, 5.0 per cent,
3. Total weight of weak lyes to be handled, 3150÷5.0×100=63000 lbs.
4. Average percentage of salt (NaCl) in crude weak lyes, 6.8 per cent.
5. Average percentage of salt in 80 per cent crude, 7.5 per cent.
6. Theoretical weight of 80 per cent crude to be produced 3150÷80×100=3935 lbs.
7. Weight of water to evaporate =59065 lbs.
8. Weight of salt to recover (6.8 per cent of 63000)—(7.5 per cent of 3935)=3890 lbs.
9. Labor cost assumed, 75c per man hour.
10. Power cost assumed, 1c per K.W.H.
11. Steam cost assumed, 30c per M lbs.
12. Condensing water (cost assumed), 15c per M cubic ft.

Treatment Method

The crude soap lye spent after settling and skimming to remove traces of soap is preferably neutralized with hydrochloric acid, then treated with basic ferric sulfate or aluminum sulfate, filtered, the slight excess of acid neutralized with sodium hydroxide or carbonate and the lye evaporated in an evaporator equipped with salt chamber. The salt is steamed in the salt chamber, then centrifuged for removal of adherent g'ycerine. The concentrated crude glycerine is pumped from the evaporator to a storage tank, thence being filled into drums for shipment. For our purpose we will assume the use of aluminum sulfate rather than of basic ferric sulfate.

Cost Analysis by Operations

Direct Costs

I. Pumping to settling tanks.
  1. Power 5 KWH at $.01...$ .05
II. Heating and skimming.
  1. Power 2 KWH at $.01... .02
  2. Steam (for warming 500 lbs. at 30c per M..... .15
III. Neutralizing and coagulating.
  1. Power 3 KWH at $.01... .03
  2. Steam 2 M at 30c..... .60
  3. Chemicals
    HCL 1500 lbs. 22°
    $AL_2(SO_3)_3$ 250 lbs.
    Soda Ash 50 lbs..... 31.75
IV. Filtration.
  1. Power 3 KWH at $.01... .03
  2. Steam 2 M at 30c..... .60
  3. Press cloth expense.... .20
  4. Filter aid 2.50
V. Pumping to evaporator.
  1. Power 1.0 KWH at $.01. .01
VI. Evaporation.
  1. Steam (Vacuum equipment) 5M at 30c..... 1.50
  2. Steam for evaporation 50M at 30c..... 15.00
  3. Condensing water 16 M cu. ft. at 15c M..... 2.40
VII. Salt removal and centrifuging.
  1. Power 15 KWH at $.01. .15
  2. Steam for salt boxes 1 M .30
VIII. Pumping from Evaporator to storage.
  1. Power 2 KWH at $.01... .02
IX. Drumming.
  1. Steam 600 lbs. at 30c per M ..... .18
X. Overall Labor.
  Labor required will average 8 man-hours for each of two eight hour shifts daily for all operations, a total of 16 man-hours daily.
  16 man-hours at $.75..... 12.00

Totals. (Direct Costs)

I. Pumping to settling.....$ .05
II. Heating and skimming.... .17
III. Neutralizing and coagulating 32.38
IV. Filtration 3.33
V. Pumping to evaporator.... .01
VI. Evaporation 18.90
VII. Salt recovery ..... .45
VIII. Pumping to storage..... .02
IX. Drumming ..... .18
X. Labor 12.00

Total $67.49

Yield

Loss of 0.5 per cent to 1 per cent of glycerol in the filtration and evaporation processes may be expected so that yield may be figured at 99 per cent of 3935 lbs.=3900 lbs. approximately. Direct Costs then equal 67.49÷39=$1.7305 per 100 lbs. glycerine produced.

Fixed Costs

Depreciation:

Plant investment in treating and evaporating equipment on the basis outlined would be in the neighborhood of $15,000 installed cost and should be depreciated at 12 per cent annually, which corresponds to daily cost of $6.00 or $0.154 per 100 lbs. of 80 per cent crude glycerine produced.

Insurance and taxes may generally be figured safely at 2.5 per cent of the amount invested in plant and building, (say $25,000), which in this case is $625.00 annually, $2.08 per day or $0.053 per 100 lbs.

Superintendence cost is difficult of determination, but in the average soap plant it is reasonable to divide this item proportionately to the value of products by department. On this basis superintendence, laboratory and similar costs of 15c per 100 lbs. or $5.85 daily will be accrued by the glycerine treating and evaporating department.

The total glycerine treating and evaporating cost may then be assembled as follows:

Direct Costs (per 100 lbs.)	$1.7305
Depreciation	.154
Insurance-Taxes	.053
Superintendence, laboratory, etc.	.15
Total per 100 lbs.	$2.0875

Credit

If crude weak lyes are not recovered, the entire value of the glycerine and salt contained therein is lost. If glycerine evaporation department is charged by kettle department with the value of glycerine in the weak lyes, it should then be credited something for salt returned

to soap kettles, which credit will reduce cost of glycerine evaporation.

Taking the example above, assume the glycerine content of weak lyes to be charged to glycerine evaporation at 8.5c per lb., the salt in the weak lyes being of course unsaleable.

We have a glycerine department daily cost sheet then as follows:

	Dr.	*Cr.*
3150 lbs. glycerine in weak lyes at 8.5c	$267.75	
Direct Costs	67.49	
Indirect Costs	13.93	
3890 lbs. salt at 1c per lb.		$38.90
3900 lbs. 80 per cent crude at 9c		351.00
Total	$349.17	$389.90

Profit=$40.73 or $1.044 per 100 lbs. of 80 per cent crude glycerine produced.

This projected profit is taken on the assumption that, with 80 per cent soap lye crude glycerine selling at 9c per lb., it would be practicable to sell untreated spent lyes at the soap factory on the basis of 8.5c per lb., for their glycerine content.

It is not considered practical to assume a higher price, because of cost of drumming the lye or putting it in tankcars, the costs of transport to point of evaporation, of treating and evaporating and of return freight or cartage on drums.

Therefore, although a price of 9c per lb. for 80 per cent crude is the equivalent of 11.25c per lb. for the pure glycerine contained therein it is not likely that equivalent price for spent soap lye would exceed the figure of 8.5c for its glycerine content.

Analysis of cost of treating and evaporation distributed under headings of steam, water power, chemicals, labor, divided overhead, may be of interest and appears as follows:

Direct Costs:

	Per 100 lbs. 80 % Crude Produced
Steam	$ .4700
Power	.0080
Water	.0615
Chemicals & press cloth	.8833
Labor	.3077
Total Direct:	$1.7305

Indirect Costs:

Superintendence and laboratory	$ .1500
Depreciation	.1540
Interest, Insurance, & Taxes	.0530
	$. 3570
Total all costs per 100 lbs. 80 per cent crude produced	$2.0375

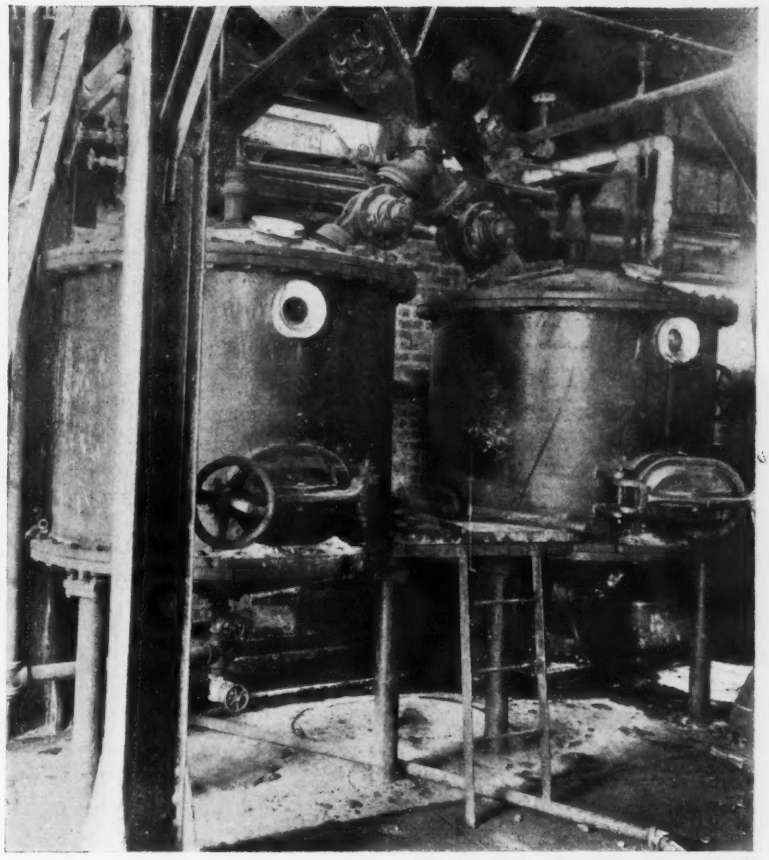


Photo Courtesy Swenson Evaporator Co.

The cost analysis given above indicates that the soapmaker of moderate size can make a profit of $40.73 daily, or $12,219.00 in a 300 day year, by treatment and concentration of spent lyes for recovery of 80 per cent crude glycerine, based upon a price of 9c per lb. for the 80 per cent crude and assuming that the maximum *net* price obtainable at the factory for untreated spent lyes is 8.5c per lb. of glycerine content therein.

If this figure of 8.5c can for any reason be increased to 9.5c (with 80 per cent crude remaining at 9c per lb. or lower) the profit of treatment and concentration will practically disappear. Such a condition is very unlikely to occur as it would leave little or no profit to the purchaser of the spent lye.

It will be readily apparent that even the smallest soapmaker can not afford to discard his spent lyes. He should preferably treat and evaporate them or at worst, should sell them to others for such treatment.

Saponifying Oils and Fats

Anhydrous soap and glycerine are obtained by spraying a fatty oil or fat and a caustic alkali solution into a current of superheated steam which flows continuously through a reaction chamber. Steam at a temperature of 250-300° C. is preferred. The glycerine is recovered by condensation, and the soap is withdrawn from the reaction chamber. Soap compositions may be prepared by introducing appropriate substances such as borax, trisodium phosphate or soda ash, into the chamber. Lorenz Patents Corp. French Patent No. 828.022; through *Chem Abs.*

Tetrasodium PYROPHOSPHATE...

A new-comer among detergent aids

By W. W. COBBS
Monsanto Chemical Co.

TETRA sodium pyrophosphate, the normal salt of pyrophosphoric acid ($H_4P_2O_7$), is attracting much interest currently and finding numerous applications in the soap and general detergent field.

In the production of this new detergent aid, the first step is the manufacture of the acid. Pyrophosphoric acid may be formed by the partial dehydration of orthophosphoric acid at elevated temperatures as follows:

$$2H_3PO_4 = H_4P_2O_7 + H_2O$$

Or it may be formed by the partial hydration of P_2O_5:

$$P_2O_5 + 2H_2O = H_4P_2O_7$$

An aqueous solution of pyrophosphoric acid is fairly stable if it is kept at low temperatures, but it reverts rapidly to orthophosphoric acid if heated.

Pyrophosphoric acid forms two commercially significant salts, the normal and secondary salts, such as $Na_4P_2O_7$ and $Na_2H_2P_2O_7$.

Tetra sodium pyrophosphate exists in the crystalline form as the decahydrate, $Na_4P_2O_7 \cdot 10H_2O$. However, for economy of shipment, this product is usually sold in the anhydrous form. Therefore, all future references to the material in this article will refer to the anhydrous form only.

Chemical Properties
Anhydrous, Commercial Grade

% P_2O_5	52.60
% Na_2O	45.22
% Alkalinity as Na_2O to methyl orange	22.61
to phenolphthalein	2.20
pH — 1% Solution @ 25°C.	10.2
Solubility (Grams per 100 gms. water)	
At 25°C.	6.5
At 100°C.	40.0

Stability to Reversion

Although water solutions of pyrophosphoric acid are relatively unstable, particularly at high temperature, tetra sodium pyrophosphate is remarkably stable in water solution, even at boiling temperatures. A 1 per cent water solution of tetra sodium pyrophosphate boiled in a reflux condenser for 27 hours showed no measurable orthophosphate content.

The rate of reversion is affected by the addition of strong acids and alkalies, particularly in boiling solutions. In a 5 per cent nitric acid solution, all of the pyrophosphate will revert to orthophosphate on boiling for one hour. In strongly alkaline solutions, tests show that, after boiling a solution containing 5 per cent sodium pyrophosphate and 1.5 per cent caustic soda for 3½ hours, 10 per cent of the pyrophosphate had reverted to the orthophosphate.

pH

The pH of this material (10.2 in a 1 per cent solution at 25°C.) is perfectly suited for a soap builder, since it is very close to the pH of most dilute soap solutions. For this reason sodium pyrophosphate can be used in detergent operations where the more common alkalies, such as caustic soda, soda ash, trisodium phosphate and sodium metasilicate are prohibited. The low pH is valuable in the washing of wool, acetate rayon, and particularly silk, as all of these fabrics are injured by harsh alkalies. The mild alkalinity is also very desirable for washing operations where the hands must come in contact with the detergent solution.

Chart A shows the pH of varying concentrations of solutions of pyrophosphate in comparison with the pH of solutions of the more common alkalies.

Wetting Properties

Tetra sodium pyrophosphate is not an effective wetting agent—that is to say, when added to a water solution it does not appreciably lower the surface tension of water. For this reason, it is generally incorporated with soaps, oils, or stronger alkalies.

However, when this product is used in conjunction with soaps and textile oils it increases their effectiveness because of its action on hard water.

Emulsification Value

ONE of the most important functions of a detergent is to stabilize the suspension of "dirt" particles so that they will not re-deposit on the article which is being cleaned. Obviously, there is no advantage in removing the soil from an article if it is allowed to settle down on the material as soon as the mechanical operation of the cleansing bath has stopped.

In the language used in detergency, the ability to keep small particles of solids and oils suspended in a water solution is generally referred to as "emulsification value." Due to its complex molecular structure, tetra sodium pyrophosphate

possesses remarkable emulsification values as shown by Chart B which presents this product in comparison with soap and several of the more common alkalies. It should be noted that tetra sodium pyrophosphate shows this remarkable emulsifying effect over a wide range of concentrations and that these concentrations are in the range at which detergents are generally employed. Also, attention should be called to the fact that tetra sodium pyrophosphate shows a high emulsification value at the very low concentration of 0.01 per cent. In considering, moreover, the emulsification values obtained for soap, it should be borne in mind that soap is seldom if ever used at concentrations over 0.2 per cent.

In addition to the tests against burnt umber (iron silicate), the emulsification powers of tetra sodium pyrophosphate have been tested against a number of other materials in order to show that the emulsification action was not due to a chemical reaction between the pyrophosphate and iron. Among the materials which have been found to be readily emulsified are lanolin, linseed oil, olive oil, neatsfoot oil, bone ash, lithopone, titanium oxide, clay, iron oxide, and copper phosphate.

As stated above, the term used in detergency for stabilizing a suspension of "dirt" particles in a water solution is generally referred to as "emulsification." However, in operations other than detergency the term "emulsification" is not generally employed and each particular industry has its own way of expressing this phenomenon. For example—in the clay industry a material having the ability to disperse clay in a water suspension is referred to as a "deflocculating agent." In the pigment industry a chemical used for this purpose is generally referred to as a "dispersing agent."

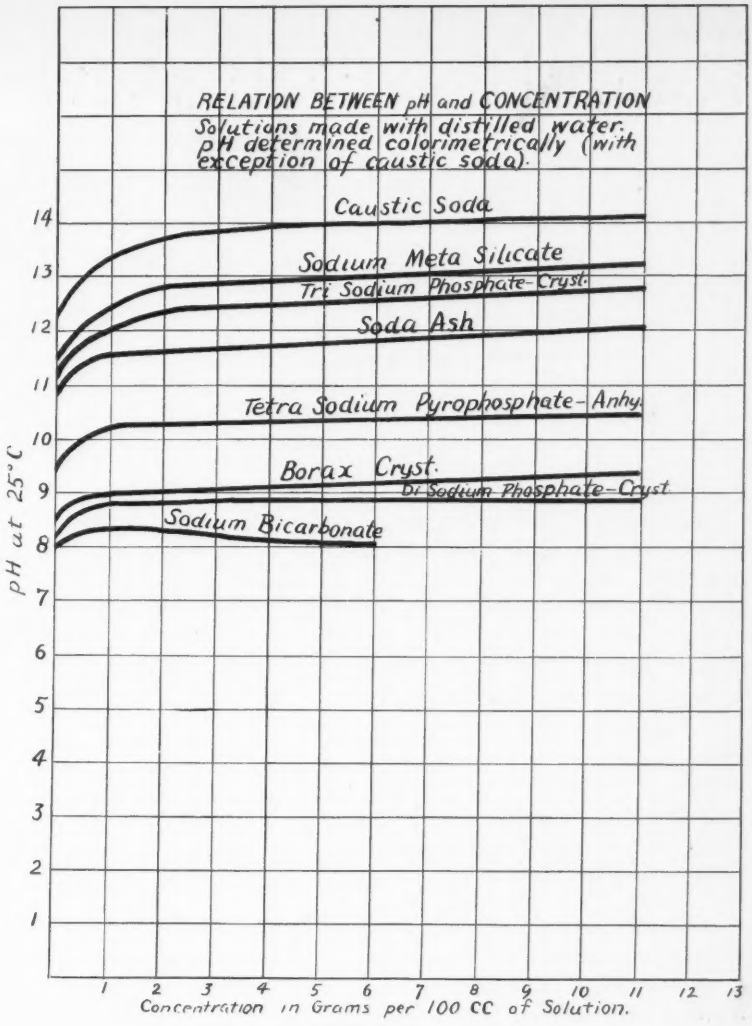


Chart I

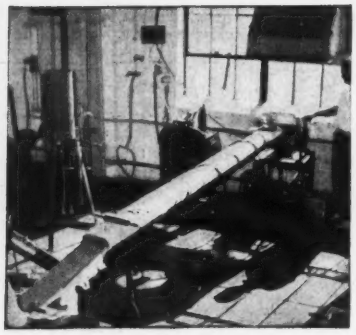
Water Softening Properties

TETRA sodium pyrophosphate is one of the few alkaline agents capable of completely suppressing the formation of insoluble calcium and magnesium soaps. This phenomenon may be due to the formation of a complex sodium calcium pyrophosphate which is soluble in an excess of sodium pyrophosphate. The temperature and the concentration of the soap solution has a very pronounced effect on the amount of pyrophosphate required for complete suppression of the formation of the insoluble "hard water" soaps.

In actual commercial practice it has been found unnecessary and uneconomic to use this product at the concentrations required for the complete suppression of the calcium and magnesium soap curds since satisfactory water softening and generally increased detergent effects can be obtained at much lower concentrations. As an illustration—in launderometer tests in water of 300 p.p.m. hardness, pyrophosphate would have been required at the rate of 6.60 lbs. per 100 gallons of water to give a perfectly clear solution at 0.2 per cent soap concentration at 140°F. However, when launderometer tests were run in which pyrophosphate was used at the rate of only 0.22 lbs. (one-thirtieth of the amount required for calcium and magnesium suppression), a series of three different soap powders were improved by amounts of 33 to 89 per cent.

The cause of this remarkable improvement in washing effectiveness may be due mainly to the dispersing or emulsifying effect on the insoluble hard water soaps. It has been clearly demonstrated that the addition of a very small amount of pyrophosphate to solutions of soap in hard water

1. The strip of test cloth is first dirtied in this soiling box containing a standard soil solution. Uniformity of soil is essential in interpreting test results.



2. The soiled cloth is dried with this mechanical dryer, which is literally a laboratory clothes line, and then

3. Cut into swatches which are placed in jars. Washing solutions are poured into the jars, which are then sealed and placed in

will noticeably increase the sudsing of the bath and will prevent the objectionable agglomeration of the sticky curds on the surface.

Uses of Sodium Pyrophosphate

TETRA sodium pyrophosphate may be best described as a detergent aid which increases the effectiveness of soap and most other detergents. Its effectiveness is due to a combination of its emulsifying effect on the dirt and to its water softening value. The material is naturally most effective in hard water, since hard water presents a more difficult washing problem than soft water. However, actual laundry tests conducted in boiler condensate (water at practically zero hardness) show that this product possesses a detergent value aside from its effect as a calcium and magnesium dispersing agent.

The pH of tetra sodium pyrophosphate is about at an optimum as it allows the material to go into all types of cleansers. If higher pH's than 10.2 are required, this condition can be attained by the use of stronger alkalies in conjunction with it.

Laboratory investigation indicates this product may enter into a variety of uses in the field of detergency. Among these are soap powders, laundry-soap builders, dishwashing compounds, silk degumming, wool, rayon and cotton scouring, cotton kier-boiling, metal cleaning, bottle washing, cleanser for painted surfaces, dairy cleansing, etc.

Household Built Soaps

Launderometer tests indicate the applicability of this new product as a builder for household type of built soaps. Sodium pyrophosphate may replace part of the soap or alkali or it may replace all of the alkali.

Tests are usually conducted in water of two different hardnesses—50 p.p.m. and 300 p.p.m.; 50 p.p.m. represents relatively soft water, whereas 300 p.p.m. represents truly hard water, such as is found in many localities in the middle west.

In tests with sodium pyrophosphate in water of 50 p.p.m. hardness, the detergent concentration was 0.15 per cent since this was the minimum concentration found to give a good sudsing effect. In the hard water test (300 p.p.m.) it was necessary to increase the soap concentration to 0.30 per cent in order to get a sudsing effect comparable to that of the soft water tests.

For simplicity of comparison, all of the ingredients were used on the anhydrous basis—for example, the moisture content of the soap was determined by analysis and allowance was made for the water content.

In the launderometer tests, four-inch squares of standard soil are placed in a fresh detergent solution and washed at 140°F. for ten minutes. The square is removed from the jar and rinsed in hot water and a fourth of the square (an inch-wide strip) is cut off the cloth. The remainder of the cloth is then placed in a fresh detergent solution and the machine is run ten minutes longer. It is then extracted, rinsed and another inch strip cut off. The process is repeated until at the end there remains an inch-wide strip which has received four ten-minute washings. In these tests the same soap was used throughout,—a high quality white flake soap.

The results reported are an average of the value of per cent soil removal for the four washes. For example, if the first ten-minute wash gives 25 per cent soil removal, the cumulative effect after the second 35 per cent, the third 45 per cent and the fourth 55 per cent, the efficiency of the soap is arrived at by taking the average of 25, 35, 45, and 55, which is 40 per cent average soil removal.

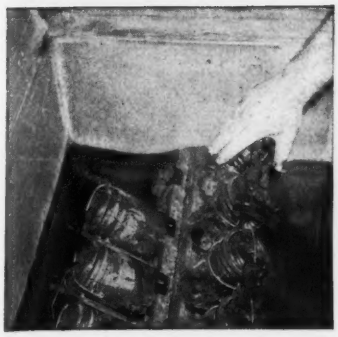
The results obtained in this series of tests are quite interesting and give a very good idea of the effectiveness of sodium pyrophosphate.

Soap Builder for Laundry Use

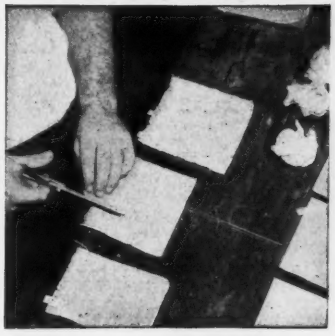
An introductory study of the effect of sodium pyrophosphate as a soap-builder in the power laundry industry has been started, but as yet the work has not progressed far enough to draw any conclusions as to its effectiveness. Preliminary tests have indicated that the product is effective in combination with the stronger alkalies, such as sodium metasilicate and trisodium phosphate.

Dishwashing Compounds

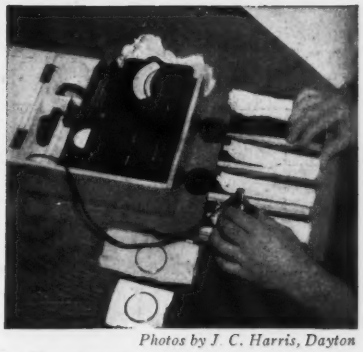
Sodium pyrophosphate is



4. The Laundrometer for accurately checked washing periods. When the washing is completed, the swatches are removed from the jars and



5. Cut into narrow strips. The strips are dried, catalogued as to group and passed along to



Photos by J. C. Harris, Dayton

6. The photoelectric photometer, the all-seeing eye of the laundry, which gauges the exact amount of soil removed from the cloth during the washing period.

adaptable as an ingredient in dish-washing compounds for power machines. It can be incorporated with various combinations of sodium metasilicate, soda ash and trisodium phosphate. The addition of pyrophosphate is particularly effective in hard water areas. Its presence is effective as an emulsifying agent for the fatty materials on the soiled dishes.

Bottle Washing

The addition of sodium pyrophosphate to caustic soda in bottle washing machines results in a cleaner bottle which rinses more freely. In the hand washing of bottles and glasses, the product is very effective when used "straight." The low pH is much easier on the hands than the stronger alkalies generally used.

Dairy Cleaning

Mixtures of 25 per cent pyrophosphate and 75 per cent tri sodium phosphate have been found very efficient as a general dairy cleanser. The pyrophosphate has a very strong emulsifying effect on casein and butter fat.

Metal Cleaning

Pyrophosphate is used in combination with stronger alkalies, such as sodium metasilicate and tri sodium phosphate.

Cleaner for Painted Surfaces

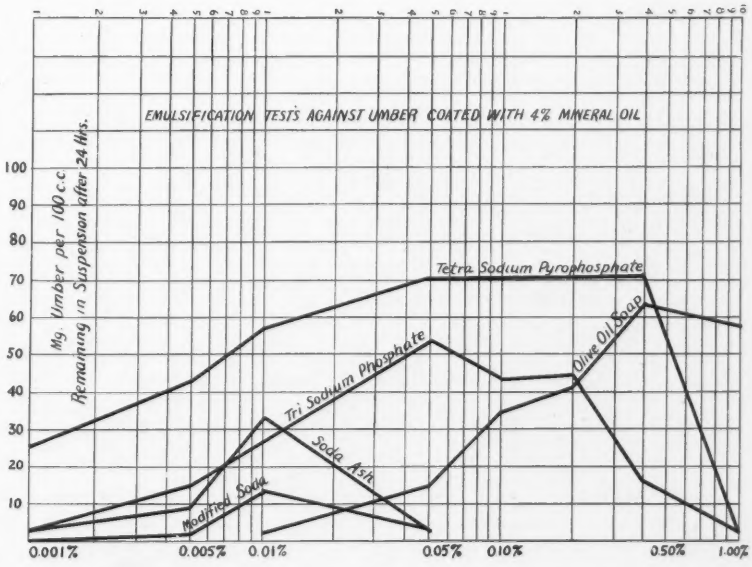
Pyrophosphate can be used either alone or in conjunction with soaps and other wetting agents for cleansing painted, varnished or waxed surfaces. It is particularly effective for cleaning surfaces which have a very high lustre because its mild alkalinity prevents dulling of the highly polished surfaces.

Textile Operations

Sodium pyrophosphate is indicated as a soap adjuvant in a number of textile operations, such as silk degumming, cotton, wool and rayon scouring, as a component of silk hosiery degumming compounds, and as a stabilizer for peroxide in the bleaching of wool.

Tetra Potassium Pyrophosphate

Recently a new soluble pyrophosphate salt has become available —tetra potassium pyrophosphate. Potassium pyrophosphate has been developed for uses where a pyrophosphate salt of very high solubility is desirable. The solubility of this product is 235 grams in 100 grams of water at 25° C. The main uses are in liquid soap, shampoos and liquid textile oils, such as silk degumming oils. The price of this material is higher than the sodium salt, since K_2O is much more costly than Na_2O. However, the potassium salt shows promise of gaining acceptance where a high degree of solubility is an important factor.



The Buyer Considers LAUNDRY SPECIFICATIONS

(Part II)

By J. C. Booser

IN the previous issue, the value and application of correct specifications as applied to laundry materials was discussed from the angle of the buyer based on actual experience in large-scale purchasing. Various washing compounds, water softeners, soap builders, and alkaline salts were considered. This section of the discussion considers that portion of the specification group covering soaps, bleaches, sours, and bluings,—particularly the minimum number of soaps considered necessary for good washing procedure.

Powdered Soap (High Titer)

Use: For washing fabrics in hot water (140° F. or over) when the presence of alkaline salts is objectionable. Is also suitable for mixing with various alkalies to make hot water washing compounds.

Requirements: Shall be a soap in powdered form made from soda and fats, without rosin, as free as possible from water and all substances other than true soap.

It shall be light in color and free from disagreeable odor.

Matter volatile at 105° C. shall not exceed 7.0 per cent. Deliveries which yield more than 7.0 per cent will be rejected without further test.

The sum of free alkali, total matter insoluble in alcohol, and sodium chloride shall not exceed 3.0 per cent.

Free alkali calculated as sodium hydroxide (NaOH) shall not exceed 0.5 per cent.

Water insoluble matter shall not exceed 0.4 per cent.

Titer of the mixed fatty acids prepared from the soap shall not be less than 39° C.

Residue retained on a No. 12 sieve shall not exceed 1.5 per cent.

Note: The percentage of matter volatile at 105° C. will be computed on the basis of the soap as received. All other constituents will be calculated on the basis of soap containing 5.0 per cent volatile matter.

Sampling and Testing: Will be done in accordance with current methods of The American Oil Chemists' Society.

Powdered Soap (Low Titer)

Use: For the laundering of colored cotton fabrics at temperatures between 70° F. and 120° F. when the presence of alkaline salts is objectionable. Also suitable for mixing with various alkalies to make cold water washing compounds.

Requirements: The soap desired under this specification shall be made from soda and vegetable oils such as olive and cocoanut oils. It shall be free from rosin, and as free as possible from water and all substances other than true soap.

It shall be of a white or light green uniform color and free from any disagreeable odor.

Matter volatile at 105° C. shall not exceed 7.0 per cent. Deliveries yielding more will be rejected without further test.

The sum of free alkali, total matter insoluble in alcohol, and sodium chloride shall not exceed 3.0 per cent.

Free alkali as NaOH shall not exceed 0.5 per cent.

Water insoluble matter shall not exceed 0.4 per cent.

Titer of the mixed fatty acids prepared from the soap shall not exceed 25° C.

Residue retained on a No. 12 sieve shall not exceed 1.5 per cent. Note: The percentage of matter volatile at 105° C. will be computed on the basis of the soap as received. All other constituents will be calculated on the basis of soap containing 5.0 per cent volatile matter.

Sampling and Testing: Will be done in accordance with current methods of The American Oil Chemists' Society.

Chip Soap

Use: For hot water washing at 140° F. or over when the presence of alkaline salts is objectionable, and where this form of soap is preferred to the powdered form.

Requirements: The soap shall be in chip form made from soda and fats, without rosin, and as free as possible from water and all substances other than true soap.

The soap shall be light in color and free from disagreeable odor.

Matter volatile at 105° C. shall not exceed 15.0 per cent. Deliveries yielding more will be rejected without further test.

The sum of free alkali, total matter insoluble in alcohol, and sodium chloride shall not exceed 3.0 per cent.

Free alkali as NaOH shall not exceed 0.5 per cent.

Water insoluble matter shall not exceed 0.2 per cent.

Titer of the mixed fatty acids prepared from the soap must be not less than 39° C.

Note: The percentage of matter volatile at 105° C. will be computed on the basis of the soap as received. All other constituents will be calculated on the basis of soap containing 10.0 per cent volatile matter.

Sampling and Testing: Will be done in accordance with current methods of The American Oil Chemists' Society.

Flake Soap

Use: For laundering silk, rayon and woolen fabrics at temperatures between 90° F. and 120° F. without the addition of alkaline salts.

Requirements: The soap shall be in flake form equal in every respect to one made from soda and high grade refined tallow with 20 to 25 per cent of refined coconut oil, as free as possible from water and all substances other than true soap.

The soap shall be white in color and shall be as free as possible from any odor.

Matter volatile at 105° C. shall not exceed 12.0 per cent.

The sum of free alkali, total matter insoluble in alcohol, and sodium chloride shall not exceed 2.5 per cent.

Free alkali as NaOH shall not exceed 0.1 per cent.

Chloride as NaCl shall not exceed 1.0 per cent.

Water insoluble matter shall not exceed 0.3 per cent.

The titer of the mixed fatty acids shall be between 31° C. and 38° C.

The soap shall be free from rosin, sugar, and any other foreign matter.

The acid number of the mixed fatty acids prepared from the soap shall be not less than 212 (mg. of KOH per gram of fatty acids).

The percentage of matter volatile at 105° C. will be computed on the basis of the soap as received. All other constituents will be calculated on the basis of soap containing 8.0 per cent of volatile matter.

Bleaches

Chlorine procured in powder and solution form under the following specifications has filled the needs of these laundries up to the present time.

Liquid Bleach

Use: For bleaching cotton fabrics in laundry practice.

Requirements: The liquid bleach shall be a sodium hypochlorite solution conforming to the following requirements at time of shipment.

	Minimum Per Cent	*Maximum Per Cent*
Available chlorine by weight	15.0	....
Available chlorine by volume	19.0	....
Sodium hydroxide as NaOH by weight	0.25	1.0
Total alkali as Na_2O	....	1.4

The natural color of the bleach shall be from straw yellow to light tan, and it shall be free from artificial coloring matter and suspended matter.

The specific gravity at 60° F. shall be from 1.24 to 1.30.

Note: This bleach is an inherently unstable solution. The amount of decomposition is dependent upon the following conditions all of which are beyond the control of the manufacturer.

(a) Time elapsing between shipment and use in the laundry.

(b) Temperature to which the bleach is subjected during storage and handling after shipment.

(c) Exposure to light, particularly sunlight after shipment.

(d) Mechanical agitation during handling after shipment.

Due to these uncertainties the supplier will not be required to guarantee the stipulated minimum

available chlorine concentration of the bleach after shipment is made.

Sampling and Testing: Shall be done before shipment. Here again methods assembled from various sources are too lengthy to present.

Powdered Bleach

Use: For bleaching fabrics in accordance with good laundry practice.

Requirements: The bleach shall be a "high available chlorine content" calcium hypochlorite in powder form. The powder to be dry and free-flowing.

The bleach shall meet these further requirements:

	Minimum Per Cent	*Maximum Per Cent*
Available chlorine	70.0	....
Calcium chloride $CaCl_2$	....	8.0
Calcium chlorate $Ca(ClO_3)_2$	....	3.0
Calcium hydroxide $Ca(OH)_2$	....	14.0
Sodium chloride NaCl	....	25.0
Iron oxide Fe_2O_3	....	0.3
Alumina Al_2O_3	....	0.2
Silica SiO_2	....	0.2
Inert insoluble matter including calcium carbonate	....	5.0
Moisture	....	3.0

Stability: When stored in the unopened manufacturer's containers at temperatures not exceeding 80° F. the unit can (3¾ lb. approx.) shall contain not less than 2.3 lbs. of available chlorine at the end of a 250 day storage period.

Solubility: When preparing a one per cent soda bleach solution in accordance with the manufacturer's directions, not more than three minutes of stirring in water (100° F. to 110° F.) shall be required to dissolve completely the available chlorine.

Sampling and Testing: These methods were obtained from the makers of this type of bleach and are too lengthy for presentation.

Two types of bluing are purchased under following specifications.

Liquid Bluing

Use: This bluing is to be used for either sour or non-sour tinting in laundry practice.

Requirements: The bluing shall be a solution of water-soluble aniline blue in a suitable solvent.

When mixed in the proportion of 2 fluid ounces (containing the equivalent of 1 ounce of dry blue) to from 2 to 3 gallons of water, the liquid bluing shall yield a stock solution, which, when used in the proper dilution under correct conditions will tint fabrics to a bright white.

The tint so produced shall be fugitive to washing.

The liquid bluing shall be free from suspended matter and shall also be completely soluble in or miscible with water.

When mixed with water the resultant solution shall be reddish blue.

The tinctorial strength shall be not less than that of the standard sample. (A portion of the standard sample is available upon request to interested bidders).

The liquid bluing shall be suitable for use over a pH range of 4.0 to 7.2. In sour bluing procedure the use of acetic acid in conjunction with the bluing is permissible in the amount recommended by the vendor.

The dry aniline blue used in making the liquid bluing shall conform to the following requirements.

	Minimum Per Cent	*Maximum Per Cent*
Sodium or potassium ferricyanide	....	None
Direct cotton dyes	....	None
Naphthol blue black	....	None
Water insoluble (1% solution)	....	0.1
Aniline blue and standardizing salts such as sodium chloride, sodium sulfate, etc.	Remainder	

Sampling and Testing: A representative sample of not less than two fluid ounces shall be taken for test. The bluing will be tested by the methods given in Federal Specification O-B-491 Laundry Bluing. The buyer reserves the right to use any additional methods that might be necessary to determine compliance with the specification.

Powdered Bluing

Use: For either sour or non-sour tinting in laundry practice.

Requirements: The material shall be a water soluble aniline blue in the form of powder or fine crystals.

When mixed in the proportion of 1 ounce of dry blue to from 2 to 3 gallons of water a stock solution shall result, which, when properly diluted and correctly applied will tint fabrics to a bright white.

The color shall be fugitive to washing.

A water solution of the product shall be reddish blue.

The tinctorial strength shall be not less than that of the standard sample.

The bluing shall be suitable for use over a pH range of 4.0 to 7.2. Acetic acid in amounts recommended by the vendor is permissible for sour bluing.

The dry blue shall consist of aniline blue with the necessary standardized salts such as sodium chloride, sodium sulfate, etc., and shall contain no sodium or potassium ferricyanide, direct cotton dyes, or naphthol blue black. A 1 per cent solution in distilled water shall contain not more than 0.1 per cent insoluble matter.

Sampling and Testing: A representative sample of 1 ounce or more shall be taken for test. In general the methods of test given in Federal Specification O-B-491 will be used in testing the bluing, however the buyer reserves the right to use additional tests if necessary to determine whether or not the material complies with the specification.

Sours

Fluorine compounds of sodium and ammonium were selected as the souring materials and are covered by six specifications.

Laundry Sour (Ammonium Silicofluoride)

Use: For alkali neutralization where a sour of a high degree of solubility is desired. This material will not remove or prevent discoloration in fabrics caused by iron-bearing water.

Requirements: The ammonium silicofluoride shall be white and in the form of a free-flowing powder.

It is recognized that this compound is subject to some lumping when exposed to moisture or moisture-laden air, and this factor will be given consideration at time of inspection providing the lumping is not excessive.

The sour shall also conform to the following:

	Minimum Per Cent	*Maximum Per Cent*
Ammonium silicofluoride, $(NH_4)_2SiF_6$	98.5	....
Free silica, SiO_2	....	0.1
Ammonium sulfate, $(NH_4)_2SO_4$	....	0.1
Water insoluble	....	0.2

Note: The replacement of a maximum of 2.0 per cent of the ammonium silicofluoride with an equivalent amount of "fabric safe antichlor" is permissible under this specification.

Sampling and Testing: These are omitted in the interest of brevity, however, it is timely to point out that the analysis of these fluorides present some difficulties until the procedures are mastered.

Laundry Sour (Sodium Silicofluoride)

Use: For alkali neutralization when a sour of a fair degree of solubility is satisfactory. This sour will not remove or prevent discoloration in fabrics due to ironbearing water, and if used below a pH of 6.5 there is a possibility of over-souring as a result of the low solubility of this compound.

Requirements: The form and lumping requirement is identical with that given in the ammonium silicofluoride specification. Further requirements are:

	Minimum Per Cent	*Maximum Per Cent*
Sodium silicofluoride, Na_2SiF_6	98.0	....
Free silica, SiO_2	....	0.1
Sodium carbonate, Na_2CO_3	....	0.5
Sodium sulfate, Na_2SO_4	....	0.5
Water insoluble (1% solution at 70°C.)	....	0.2

Laundry Sour (Ammonium Bifluoride)

Use: To be used alone or in conjunction with ammonium silicofluoride as a neutralizing agent for the alkalinity normally remaining in fabrics after the washing operations. It is also effective in preventing of fabric discoloration caused by ironbearing water. The compound is more soluble than sodium bifluoride and is suitable for souring at a pH as low as 4.2.

Requirements: Form and lumping; same as ammonium silicofluoride. Further requirements are as follows:

	Minimum Per Cent	*Maximum Per Cent*
Ammonium bifluoride, $(NH_4)HF_2$	93.0	....
Free silica, SiO_2	....	0.1
Water insoluble	....	0.2
Iron (free or combined)	....	0.05

Laundry Sour (Sodium Bifluoride)

Use: To be used alone or in conjunction with sodium silicofluoride as a neutralizing agent in laundry practice; also as an aid in the prevention of discoloration caused by iron in the water supply. Less soluble than ammonium bifluoride but can be used for souring at a pH as low as 4.2.

Requirements: Form and lumping; same as ammonium silicofluoride. Further requirements are:

	Minimum Per Cent	*Maximum Per Cent*
Sodium bifluoride, $NaHF_2$	90.0	....
Free silica, SiO_2	....	0.1
Water insoluble	....	0.2
Iron (free or combined)	....	0.07

Note: The addition of "fabric safe antichlor" in amounts sufficient to protect fabrics from traces of chlorine bleach is permissible under this specification.

Laundry Sour Compound (Sodium Fluorides)

Use: The two types of compounds covered by this specification are intended for use in laundries as combined neutralizing and iron-discoloration prevention agents. While these sodium fluorides are not as soluble as the corresponding ammonium salts they are generally satisfactory for the purpose intended.

Type A is for use where the iron content of the water supply is not excessive. Type B is required where the iron content is excessive.

Requirements: The both types of sour compound covered by this specification shall consist of a mixture of sodium silicofluoride and sodium bifluoride of the grades specified for these two materials under the preceding specifications, in the following proportions.

TYPE A

	Minimum Per Cent	*Maximum Per Cent*
Sodium bifluoride	25.0	27.0
Sodium silicofluoride	73.0	75.0

TYPE B

	Minimum Per Cent	*Maximum Per Cent*
Sodium bifluoride	50.0	52.0
Sodium silicofluoride	48.0	50.0

Both types of sours shall be intimate mixtures showing no appreciable separation of the constituents. They shall be white, free-flowing and free from dirt, wood chips and other foreign matter.

Laundry Sour Compound (Ammonium Fluorides)

Use: The two types of compounds covered herein are intended as combined neutralizing and iron-discoloration prevention agents, in laundries where the more soluble ammonium salts are desired. They are suitable for souring at a pH as low as 5.0.

Type A is intended for use when the water supply is relatively low in iron content. Type B is required if the iron content is high.

Requirements: Both types of sour compound shall consist of mixtures of ammonium silicofluoride and ammonium bifluoride of the grades previously specified, in the following proportions.

TYPE A

	Minimum Per Cent	*Maximum Per Cent*
Ammonium bifluoride	25.0	27.0
Ammonium silicofluoride	73.0	75.0

(*Turn to Page* 70)

Raw Materials for the NEWER DETERGENTS

By Dr. Charles E. Mullin

ALTHOUGH the recovery of the higher aliphatic alcohols from their natural sources is not now as important, even in the case of cetyl alcohol, as before the discovery of the direct hydrogenation process for the production of the higher fatty alcohols, on account of the low cost of the synthetic fatty alcohols by the hydrogenation process, the subject is still of interest, particularly in the case of cetyl alcohol, from spermaceti and sperm oil. Much cetyl alcohol is still recovered from this source. Just how long this will continue will depend almost entirely upon the relative costs of the natural and synthetic products. The recovery of certain higher alcohols from wool "grease" or wax also continues to be of interest although these alcohols are not of much interest to the detergent industry at present.

In any process attempting to recover the higher alcohols from either natural or synthetic products by alkaline processes, care must be taken to avoid large excesses of alkali, for the reason that on heating these alcohols with soda-lime, or potassium-lime, they are de-hydrogenated and the corresponding fatty acid formed, with the evolution of hydrogen. For example, palmitic acid is formed from cetyl alcohol in the following reaction:

$$C_{15}H_{31}.CH_2.OH + NaOH = C_{15}H_{31}COONa + 2H_2.$$

The various processes which have been proposed for the recovery of the natural higher fatty alcohols from their different sources are probably most easily summarized by a consideration of the numerous patents covering these processes. Naturally, some of the patented processes are much more practical than others, but the processes now in use are probably all covered by the following patents.

THIS is the second of a series of articles on the higher aliphatic alcohols with particular reference to the higher fatty alcohols and their derivatives. The first paper of the series was published in the preceding issue of SOAP. Earlier papers by the author on the higher fatty alcohol type detergents appeared in SOAP 13, No. 12, (1937); SOAP 14, Nos. 1, 2, 3, 4, (1938).—The Editor.

On January 14, 1919, S. Alexrad and I. Hochstadter were granted United States Patent No. 1,290,870, covering the recovery of cetyl alcohol from spermaceti by the distillation of the calcium soap of spermaceti. An example states that fifteen parts of melted spermaceti are treated with about twenty parts of calcium oxide containing about five per cent of water. This mixture is heated and stirred for six hours, with the formation of the calcium soaps of the fatty acids naturally present in this wax. The mixture of calcium soaps, water and free alcohols, mostly cetyl alcohol, is placed in a still and heated to about 100° C. (212° F.) until the water is driven off. The temperature is then raised to 340° C. (644° F.), when the cetyl alcohol distills over as white fumes, forming oily drops on cooling. On further cooling, these solidify to a white mass resembling paraffin and melting at 49.5° C. (121° F.). By use of a partial vacuum, the cetyl alcohol can be distilled off at a lower temperature. It is stated that the sodium, potassium, or magnesium soaps of spermaceti may be formed and distilled in the same manner as the above calcium soap. A yield of forty to forty-five per cent of cetyl alcohol, based on the weight of spermaceti used, is claimed.

A process similar to the above is still in use, but it is reported that the process has been improved and the calcium soap is now removed by filtration, instead of distillation. By using a selective solvent, either for the calcium soaps of the fatty acids, or for the alcohols present, but not for both the soaps and the alcohols, it would appear possible to obtain a fairly good separation of the alcohols and metallic soaps, either by centrifuging or by filter pressing. The free fatty acids can be recovered in the usual manner, by splitting the calcium soaps with a mineral acid. After washing, the fatty acids can be used for the manufacture of the sodium or potassium soaps, etc.

In United States Patent No. 1,452,388, April 17, 1923, to C. A. Porter and O. C. Brewster, it is proposed to separate the waxy material present in oils by centrifuging. The oil associated with the waxy material is thinned with gasoline or other solvent, to reduce its viscosity. This mixture is refrigerated to cause solidification of at least a large part of the waxy materials present. While

floating on a calcium chloride or other aqueous solution or liquid, the mixture is centrifuged and the clear oil and the waxy material withdrawn separately. The waxy material is then treated with a sufficient amount of a warm aqueous liquid to melt it and is subjected to a second centrifugal separation.

C. Stiepel, in German Patent No. 524,366, November 20, 1928, found that when spermaceti or sperm oil is heated to above 200° C. (392° F.), with the gradual addition of an amount of concentrated caustic alkali, only about one per cent in excess of that theoretically necessary for normal saponification, the monohydric alcohol obtained from the wax is converted into an alkali soap.

In United States Patent No. 1,814,654, July 14, 1931, to M. A. Youtz and assigned to the Standard Oil Company of Indiana, it is proposed to separate the cetyl alcohol from spermaceti by first hydrolyzing the wax (spermaceti) and extracting the cetyl alcohol from the water-alcohol mixture with a solvent, such as "petroleum ether," which is substantially immiscible with the mixture. Alcohol is added to prevent the formation of gels and emulsions.

A process somewhat similar to that covered by United States Patent No. 1,290,870, above, was patented by W. Schrauth on June 12, 1934, under United States Patent No. 1,962,941, assigned to the "Unichem" Chemikalien Handels A.-G. This patent proposes to saponify sperm oil at about 250 to 300° C. (482 to 572° F.) for about six hours in the presence of calcium oxide, etc. The resulting alcohols are separated from the reaction mass by distillation. After cooling these to 10 to 30° C. (50 to 86° F.), the cetyl alcohol is separated by filtration.

A somewhat similar process is covered by German Patent No. 616,765. August 3, 1935, to W. Schrauth and assigned tothe Deutsche Hydrierwerke A.-G. It states that the high-molecular alcohols are obtained by saponifying waxes, which may have been hydrogenated, with solid or highly concentrated aqueous alkalies or alkaline earths at 150 to 280° C. (302 to 536° F.). The saponified product may be subjected to distillation or extraction processes. In an example, sperm oil is heated with calcium hydroxide at 220° C. (428° F.) for five hours. This gives a forty per cent yield of an alcohol with a fish-like odor and a sixty per cent yield of a salve-like odorless fatty acid.

Alcohols from Other Waxes

ACCORDING to British Patent No. 398,807, September 18, 1935, to W. A. Sexton, D. Ward and Imperial Chemical Industries Ltd., solid or liquid waxes, such as spermaceti, beeswax, Chinese wax, wool fat, carnauba wax, sperm oil and arctic sperm oil are saponified by heating with dry potassium or sodium hydroxide, or preferably with a mixture thereof in equimolecular proportions. The higher alcohols are separated from the saponified mixture by distillation in superheated steam at atmospheric or reduced pressure.

United States Patent No. 2,021,926, November 26, 1935, to W. A. Sexton and D. Ward, assigned to Imperial Chemical Industries, Ltd., also covers the production of higher alcohols from waxes, such as spermaceti or beeswax. The wax is heated with a dry mixture of sodium and potassium hydroxides in proportions such as to give a eutectic mixture of the corresponding soaps, which is treated with superheated steam.

According to United States Patent No. 2,056,984, October 3, 1936, to the I. G. Farbenindustrie A.-G., M. Schellmann and H. Franzen, inventors, the unsaponifiable constituents (which includes the alcohols) can be separated from the saponifiable material contained in sperm oil, wool, "fat," etc., by converting the saponifiable constituents into an aqueous mixture of the magnesium, calcium and potassium soaps, in such relative proportions that the melting point of the crude saponification product, when in an anhydrous state, is below 150° C. (302° F.). The volatile unsaponifiable matter is separated from the aqueous soap mixture by distillation.

R. J. Rosser and H. Swann, of Imperial Chemical Industries, Ltd., in United States Patent No. 2,070,318, February 9, 1937, cover the recovery of alcohols of high molecular weight from their esters. For example, in the production of an alcohol, such as cetyl alcohol, from an ester such as cetyl palmitate, the ester is caused to react with a hydrolytic alcohol which is identical with the alcohol produced by the reduction of the ester and with sodium, suitably by refluxing in xylene for approximately fifteen hours.

United States Patent No. 2,070,597, February 16, 1937, to C. O. Henke and R. G. Benner, assigned to E. I. du Pont de Nemours and Company, covers a process for the production of alcohols from their fatty acid esters, such as the alcohols from sperm oil. The fatty acid ester material, such as sperm oil, is treated with an alkali metal, such as sodium, and with a hydrogenated aromatic hydroxy compound having in the ring at least one carbon atom to which is attached one hydroxy group and one hydrogen atom, such as methyl hexalin, in the presence of a solvent, such as xylene, which is inert toward the alkali metal, the reaction suitably being effected by heating at about 100 to 110° C. (212 to 230° F.).

Alcohols from Wool Fat

THE product usually called wool grease or wool fat is actually a wax and neither a grease nor a fat, in that it consists of fatty acids combined with alcohols, instead of glycerol. It occurs naturally on sheep wool. Most commercial wool wax is recovered from wool wash waters. As in most other waxes, several alcohols are present, with cholesterol ($C_{27}H_{46}O$) and isocholesterol predominating. Ceryl alcohol ($C_{26}H_{54}O$) also occurs in wool wax, perhaps at least partly as the free alcohol. Carnaubyl ($C_{24}H_{50}O$), lanolin ($C_{12}H_{24}O$) and an un-named alcohol ($C_{27}H_{56}O$), have also been reported as recovered from wool wax, but their existence or presence is somewhat doubtful.

The percentage of alcohols present in wool wax varies widely with the source of the wax. Herbig reports variations of from 38.7 to 55.12 per cent of total alcohols. Undoubtedly any of the recovery processes will yield a mixture of practically all of the alcohols naturally present in the wax, but it is more doubtful whether in any case there would be a complete, one hundred per cent, recovery of all of the alcohols present by any of the following processes. Neither will most of the recovery processes yield pure alcohols and in some cases, at least, we may expect the presence of hydrocarbons, etc., as traces or otherwise.

According to German Patent No. 485,198, December 25, 1926, F. Frick, inventor, to the I. G. Farbenindustrie A.-G., the alcohols of wool "fat" or wax may be separated by extracting with methanol in known manner. The waxy residue so obtained is further extracted with an ester-alcohol mixture, such as a mixture of 75 parts of methyl acetate with 25 parts of methanol. The difficulty-soluble residue, when dissolved in the same ester-alcohol solvent and reprecipitated, gives a pure hydroxycholesterol. Details are given.

British Patent No. 304,150, January 14, 1928, to the I. G. Farbenindustrie A.-G., corresponding to a German Patent application of January 14, 1928, states that beeswax, montan wax, wool "fat" and similar products can be separated into the corresponding hydrocarbons, acids, and alcohols, by saponifying, atomizing the product to convert it into a dry powder, extracting with solvents to remove the unsaponifiable matter, and acidifying the soaps. Various details are given.

German Patent No. 552,830, November 1, 1928, to H. Kroper, proposes to recover wool "fat" alcohols by saponifying the wool wax with alcoholic alkalies and precipitating with alcoholic metal salt solutions, preferably salts of the alkaline earth metals. For example, lanolin is saponified with alcohol and potassium hydroxide. Calcium chloride and alcohol are then added to precipitate the wool wax alcohol. Also see United States Patent No. 2,056,984, above, and French Patent No. 809,405, below.

General Processes

FRENCH Patent No. 699,945, August 1, 1930, to the Deutsche Hydrierwerke A.-G., states that saturated alcohols of high molecular weight can be separated from liquid or solid natural wax-like substances by saturating them with hydrogen, saponifying the product in an alkaline medium, and extracting or distilling.

British Patent No. 367,339, September 11, 1930, to J. Y. Johnson for the I. G. Farbenindustrie A.-G., states that the esters present in natural or artificial waxes are decomposed into their component alcohols and carboxylic acids, as by saponification and acidification. The resulting mixture, or the separate components, or the original crude wax, may be bleached, preferably without chemical change, by oxidation. The acids produced may be halogenated, hydroxylated, or converted into salts and/or amides, ketones, esters, anhydrides, etc.

According to British Patent No. 366,553, October 2, 1930, to the I. G. Farbenindustrie A.-G., alcohols of high molecular weight are recovered from waxes, hydrogenation products of esters of animal or vegetable oils, or from the destructive oxidation products of paraffin waxes, etc., by distilling these materials, after conversion of any esters present into free acids and alcohols, with steam or vapors of a volatile liquid at a pressure below 100 mm. and a temperature above the boiling point of the volatile liquid at the pressure chosen, but below that at which the constituents of the initial materials other than alcohols are distilled. Among examples, montan wax and the waxy cake obtained by the saponification of carnauba wax are thus treated.

British Patent No. 366,025, October 27, 1930, to the I. G. Farbenindustrie A.-G., states that organic oxygen compounds consisting mainly of aliphatic alcohols, fatty acids, fatty acid esters and aliphatic ketones and aldehydes are separated from non-aromatic hydrocarbons containing at least eight carbon atoms by treating the mixtures with liquid sulfur dioxide at below 75° C. (167° F.). On standing, two layers form, the upper being mainly hydrocarbons and the lower a solution of the oxygen compounds in the sulfur dioxide, from which they may be separated by evaporation or freezing.

French Patent No. 711,789, February 23, 1931, to the I. G. Farbenindustrie A.-G., covers the isolation of alcohols of high molecular weight by extracting them from substances containing them, either free or combined with organic acids, by submitting the substances, if necessary after splitting the esters which they contain, to a fractionated distillation under reduced pressure and at a high temperature in the presence of vapors of liquids of relatively low boiling point, such as water, ethyl alcohol or toluene.

In German Patent No. 583,323, September 2, 1933, to the I. G. Farbenindustrie A.-G., W. Pungs and K. Behringer propose to recover the higher alcohols from mixtures with the higher acids by fractionally distilling the mixtures under reduced pressure, with the aid of steam or the vapor of an organic liquid, such as benezene, or ethyl alcohol. The mixtures to be treated may be those obtained by saponifying waxes, by reducing the higher fatty acid esters, or by oxidizing paraffin wax.

In German Patent No. 588,201, November 14, 1933, the Deutsche Hydrierwerke A.-G., states that alcohols can be recovered from natural waxes by dissolving the wax in an organic solvent and reducing with nascent hydrogen at a temperature above 100° C. (212° F.). Free acids in the wax may first be esterified, if desired.

In French Patent No. 809,405, March 3, 1937, the I. G. Farbenindustrie A.-G., proposes to treat crude or purified suint or similar materials with hydrogenating or reduc-

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New Products and

"Topper" is the new top-filled soap dispenser of Fuld Bros., Baltimore, just put on the market. It is fitted with a special machined push-up valve which is said well capable of standing punishment.

Sani Pine Corp., Brooklyn, packages its "Sani Pine" disinfectant in three sizes. Green color scheme matches the pine odor.

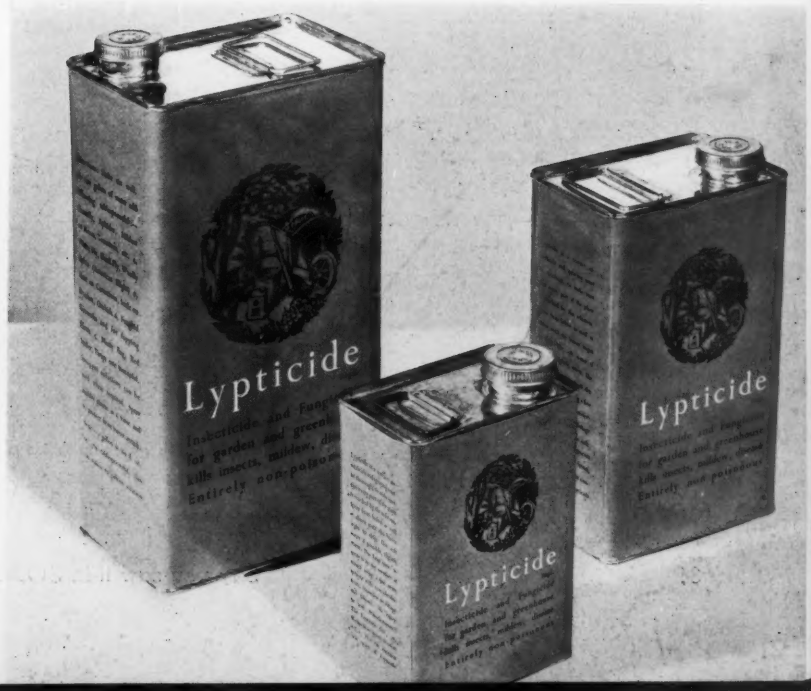
The new sanitary chemical line of Standard Oil Co. (Ohio) of Cleveland features seven liquid products all attractively bottled to emphasize the family connection. They sell at 25c per bottle.

Packages

The changes in feminine styles and bathroom equipment are well illustrated in the newly redesigned container of Hygienic Products Co., Canton, O., for "Sani-Flush." The new can retains old blue yellow and red color scheme.

Prize winner in the recent packaging show conducted by "Shelf Appeal," British packaging magazine, was "Palpak" hand cleanser. The package features strong contrast of dark and light areas. Photo courtesy "Printers' Ink."

Another prize winner in "Shelf Appeal's" show was the container for agricultural insecticide entered by Lyptol (London) Ltd. Typographic handling was voted exceptional by the judges.



News....

C. G. Marhoff Retires

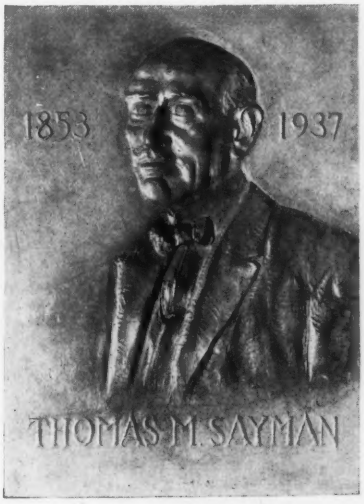
C. G. Marhoff retired November 1st as vice-president and director of Cudahy Packing Co. Mr. Marhoff joined the company in 1900 as a clerk in the South Omaha cashier's department and at the time of his retirement was in charge of the Old Dutch Cleanser department. J. H. Weiss, Mr. Marhoff's assistant, succeeds him as manager of the cleanser department. Mr. Weiss has been associated with Cudahy for nineteen years.

Form Berry-Zink Soap Corp.

The Berry-Zink Soap Corp. has recently been organized and will operate at 231 West Broadway, Louisville. The new corporation has a capital stock of $10,000 and plans to manufacture all grades of laundry soap, soap powder, and soft soaps. Charles M. Zink is president and Joseph W. Berry, secretary and treasurer. J. F. Ecker, formerly in charge of the Louisville Soap Co., will be superintendent.

Publish Edlund Lectures

The lecture series delivered by Roscoe C. Edlund before the Western Conference of Commercial and Trade Executives at Stanford University late last summer has just been published in book form by the western division of the U. S. Chamber of Commerce, 433 California Street, San Francisco. Mr. Edlund, who is manager of the Association of American Soap and Glycerine Producers, is a past president of the American Trade Association Executives. His series of lectures considered the following topics: "The Trade Association and Business Planning"; "The Trade Association and Human Relationships"; "The Trade Association and Taxation"; "The Trade Association and Market Development"; and "Today's Demands on Trade Executives." Copies of the book are available at three dollars.



A bronze plaque was dedicated to the memory of the late Dr. T. M. Sayman at exercises held recently in the St. Louis office of T. M. Sayman Products Company.

British Soaper in Czechoslovakia

Colonel George Crosfield, a member of the famous British soap family and brother of the late Sir Arthur Crosfield, former head of the Crosfield soap concern at Warrington, has been appointed Chief of the Intelligence Service of the British Legion in Czechoslovakia. Col. Crosfield is past chairman of the British Legion and of the Inter-Allied Federation of Ex-Service Men.

Revise Panama Soap Rules

An executive resolution recently issued in Panama decrees that the sale of germicidal soaps is no longer to be restricted to pharmacies but may now extend to all types of commercial establishments.

Curran Introduces "Hydralene"

Curran Corporation, Malden, Mass., manufacturer of "Gunk" degreasing solvent has just introduced a new odorless cleaning compound under the name "Hydralene." The new product is similar to "Gunk" in its general properties but has the additional advantage of being odorless. It is soluble in kerosene and other petroleum distillates in all proportions.

Move Shanghai Soap Plants

Several Chinese manufacturers of soap in Shanghai have completed plans for the moving of their plants to Kowloon in the British Colony of Hong Kong, according to a recent press report.

Schimmel Adds Representatives

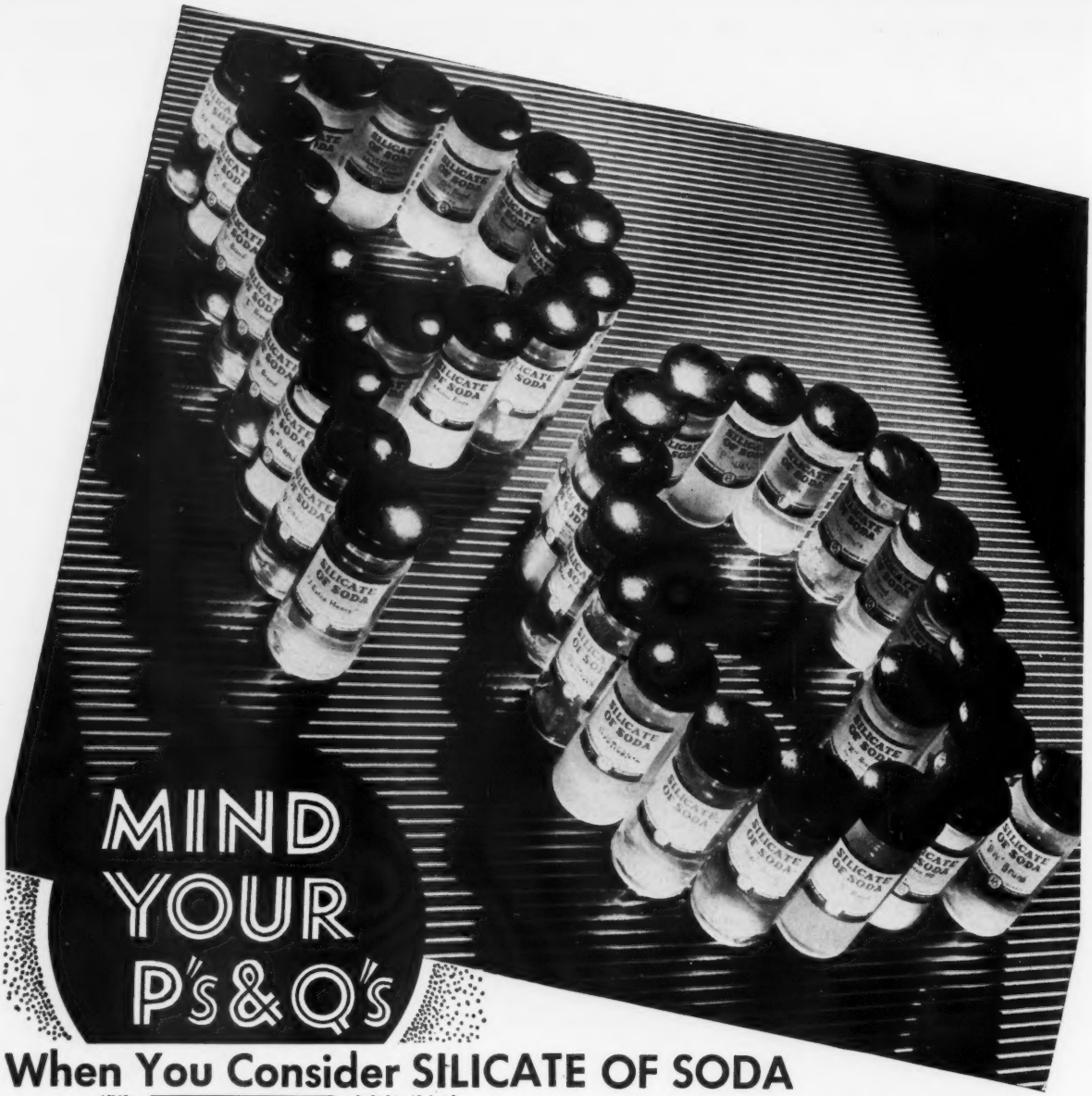
Schimmel and Co., New York, have recently appointed additional sales representatives in Cleveland, Cincinnati, and New Orleans to handle the Schimmel line of essential oils and aromatics. The new representatives are K. H. Driggs, 15201 Elderwood Avenue, East Cleveland; W. J. R. Alexander, 111 East Fourth St., Cincinnati; and Industrial Chemical & Processing Co., 3901 South Carrollton Avenue, New Orleans.

P. & G. to Build Warehouses

Procter and Gamble Co. is planning construction of two two-story warehouses at Locust Point, Baltimore. The structures will be 89 feet by 254 feet of sheet metal and it is estimated will cost $20,000.

"Draino" Account to B.B.D.&O.

Drackett Products Co., Cincinnati, manufacturer of "Draino" pipe cleanser and "Windex" window cleanser, recently placed its advertising account with Batten, Barton, Durstine & Osborn, Chicago.



When You Consider SILICATE OF SODA

EVEN back in the sixties when the use of silicate was still young in America, the soap manufacturers knew that silicate of soda was made in various forms. Then began the custom of addressing P.Q. as Silicate Headquarters.

From a company publication dated shortly after 1864, we quote "Many persons who are desirous of trying experiments with reference to the uses of silicate of soda, are often at a loss to designate what particular form of silicate will answer their purpose best . . . The Philadelphia Quartz Company aim to furnish Silicate of Soda in whatever form or strength there may be a demand for it."

Today the soap manufacturer has a line of 33 P.Q. Silicates of Soda to enable him to meet demands for new products and new detergent properties. Are you familiar with these silicates? Ask for a copy of Bulletin 171, which describes them.

ESTABLISHED 1831

PHILADELPHIA QUARTZ CO.

General Offices and Laboratory: 125 S. Third St., Phila., Pa.
Chicago Sales Office: Engineering Bldg. Stocks in 60 cities.
Sold in Canada by National Silicates Ltd., Toronto, Ont.

Works: Anderson, Ind., Baltimore, Md., Chester, Pa., Buffalo, N.Y., Kansas City, Kans., Rahway, N.J., St. Louis, Mo., Utica, Ill.

Cite Vitamin Soap Seller

Imogene Shepherd, Ltd., Chicago, manufacturer of "Baby Skin Oil and Soap," has been charged by the U. S. Federal Trade Commission with use of misleading advertising. Claims have been made that these products will correct disfigurements and blemishes of the skin, will remedy acne and eczema and are generally beneficial because of their Vitamin E and Vitamin F content. The complaint alleges that a Vitamin F does not exist and that the other representations of the company are misleading and exaggerated.

Czech Soap King Emigrates

George Schicht, leading soap manufacturer of Czechoslovakia, has decided to live permanently in Britain. Mr. Schicht was in Czechoslovakia recently, but returned to Britain when the crisis arose. With his three sons, he is applying for naturalization. He was born a Sudeten German at Aussig, on the Elbe, where the Schicht soap and candle works are located. Some years ago Mr. Schicht also became a director of Lever Brothers & Unilever, Ltd. Two of his three sons are connected with Unilevers.

Wage-Hour Law in Effect

The wage and hour provisions of the new Fair Labor Standards Act of 1938 became effective Monday, October 24, limiting the work week for concerns engaged in interstate commerce to a maximum of 44 hours, with a minimum wage rate of 25c per hour. In a statement issued October 12 Administrator Elmer F. Andrews indicated that the law will be interpreted broadly to bring under its scope not only all employees engaged in actual physical production, but also such essential employees as maintenance workers, watchmen, clerks, stenographers, messengers, etc. The law provides time and one-half for all overtime work and prescribes that records be kept of all persons employed, hours worked and pay received. For the second year of operation the minimum wage will be advanced to 30c per hour and the work week cut to 42 hours. For the following five years the same minimum wage rate will be maintained and the work week further cut to 40 hours. Thereafter the minimum wage will be 40c per hour and the maximum work week 40 hours.

Soap Assn. to Meet Dec. 1

The 12th annual meeting of the Association of American Soap & Glycerine Producers will be held in New York, Thursday, December 1, according to a notice just mailed from the office of Roscoe C. Edlund, association manager. Reports of the year's work will be submitted by association officers and new directors will be elected for 1939. All soap manufacturers are eligible to attend, whether members of the association or not.

Offer New Pot Cleaner

Metal Textile Corp., Orange, N. J., is introducing a new pot cleaner under the name "Silvylocks — the Monel Metal Sponge." It is claimed that it will outlast present pot cleaners several times to one. It is knit of a continuous ribbon of corrosion-resistant material with a patented lockstitch.

Acquires Larkin Division

Fred J. Arthurs, long associated with Larkin Co., Buffalo, recently took over their industrial chemical division when it was decided to concentrate on increasing the mail order business of the Larkin organization. Mr. Arthurs, with E. Fisher and Miss Mell Remig, will operate the business under his own name as manufacturer's agent and distributor. He will continue to make his office at the Larkin plant.

Skat Appoints Canadian Agent

Skat Co., Hartford, Conn., manufacturer of powdered soap, cleaning compounds and insecticides, has made arrangements with Duncan Products, 367 Sorauren Avenue, Toronto, for the manufacture of "Skat" products in Canada.

Ionia Prison to Make Soap

A new soap factory has just been installed at the reformatory at Ionia, Michigan, at a cost reported to be $52,000 by Hilmer Gellein, corrections director. It will employ fifty convicts and it is expected that output will be approximately 2500 pounds of soap and soap chips per hour. Production will be used in state institutions and later it is expected to manufacture soaps for use in Michigan hospitals.

P. & G. Earnings Higher

Procter and Gamble Co. and subsidiaries report a net profit of $6,097,510 for the third quarter of 1938 equal to 92c a share on the common stock. This compares with $5,254,048 or 79c a share in the second 1938 quarter and $5,044,338 or 76c a share in the third quarter of 1937.

Consolidate Anchor Offices

All Chicago sales offices of the Anchor Hocking organization were consolidated November 1 in the Merchandise Mart, Chicago. This move affects the Hocking Division and the Container Division of Anchor Hocking Glass Corp., as well as the offices of Anchor Cap & Closure Corp. A permanent display of containers and closures will be maintained at the new central offices.

"Sunbrite" in Radio Drive

Swift & Co., Chicago, have launched a fall radio advertising campaign for "Sunbrite" cleaner over a special twenty-six station radio network. In addition to the radio campaign nine national periodicals will be used to promote the product.

Wafer Heads Chem. Salesmen

Joseph M. Wafer, Industrial Chemical Sales Co., New York, has been nominated to head the Salesmen's Association of the American Chemical Industry for 1939. Other nominees on the regular ticket include Bart F. Sheehan, Grasselli Chemical Div., E. I. du Pont de Nemours & Co., vice-president; De

Witt Thompson, Mathieson Alkali Co., treasurer; C. Oscar Lind, Dow Chemical Co., secretary; George A. Bode, R. & H. Chemical Div., E. I. du Pont de Nemours & Co., and Ray H. Giebel, Harshaw Chemical Co., members of the board. These men will undoubtedly hold their offices in a dignified manner during next year as the regularly nominated ticket has never been opposed in the past. The name of the guy who is going to do all the work as chairman of the entertainment committee, succeeding Bart Sheehan who retires to the vice-presidency, will be announced later by the new president.

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P. & G. Call Dentifrice "Teel"

The name "Teel" has been selected for the new liquid dentifrice of Procter & Gamble Co. which is currently being introduced with a test campaign in the Chicago market. The new dentifrice is offered in three bottle sizes and will retail at 10, 25 and 50 cents. Carton colors are red, blue and black. The product itself is red and instructions for use call for a few drops on the tooth brush. It is said to contain a new patented cleansing ingredient which lowers surface tension.

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Monsanto Offers "Phosphotex"

Monsanto Chemical Co., St. Louis, has just announced that it is now in production on tetrasodium pyrophosphate in commercial quantities. This new product, offered for use as an ingredient of laundry soaps and washing compounds, will be sold by Monsanto under the trade name "Phosphotex." When used with soap or other alkalies, the new material is said to give increased cleansing action, particularly in hard waters.

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New British Chemical Journal

Publication was reported started last month of a new British trade paper covering the field of chemicals, soaps and cosmetics. The title of the new magazine is to be "Chemical Products." Offices are located at 35 Great St. James Street, Bedford Row, London, W.C.1, England.

Urban Market Study Completed

A STUDY of urban retail markets by Outdoor Advertising, Inc., which has been in progress for the past six years, has recently resulted in the publication of a new Urban Market Atlas recommended for use in the planning of sales and advertising campaigns. It is pointed out that in the past, because of lack of available market research data, many advertising and sales campaigns have been misdirected, or perhaps too large a share of the appropriation has been spent in unproductive markets.

The sale of nationally advertised products such as soaps, drugs, cosmetics, etc., is affected by local market conditions, it was emphasized by John E. Brennan, director of market research for Outdoor Advertising, Inc., who discussed the new market survey before representatives of business publications at a meeting in New York recently. Factors affecting sales of a given product in different localities may be as different and varied as the general standard of living of the community, the hardness of water supplies, racial characteristics, availability of gas and electricity, climatic conditions, geographical locations, etc. The American market is thus, not one big national market, but many separate markets, each of which has to be handled on an individual basis. Each market must be studied separately and the peculiar conditions brought to light which must be taken into consideration in formulating advertising and selling plans.

In the market study just concluded, an urban market has been defined as a place having a population of more than 2,500 people and having a population density of over 100 people per square mile. State and other such artificial political boundary lines have been disregarded. Contiguous areas which function as one buying center have been treated as a unit, even though they may consist of several surrounding territories in addition to the central city. The result is a series of 1,901 urban market areas scattered over the entire United States. These areas include 65 per cent of the American population, 73 per cent of its retail stores and 86 per cent of its retail business, although they occupy only 2½ per cent of the total land area.

In the market atlas which summarizes the results of this survey, maps of the principal market areas and statistics on each one of the 1901 urban markets are included. Climatic maps, market ranking tables and other useful marketing information are included. The class A markets, those which do an annual volume of retail business exceeding $25,000,000, are listed as follows:

Class "A" Markets

Market	*Retail Sales Volume (Add 000)*	*Population Total*
New York, N. Y..	$4,182,742	10,921,217
Chicago, Ill.	1,481,749	4,396,685
Los Angeles, Cal.	979,955	2,316,235
Philadelphia, Pa..	914,168	2,950,658
Boston, Mass. ...	889,862	2,367,785
Detroit, Mich. ...	693,195	2,116,054
San Francisco-Oakland, Cal...	540,556	1,243,142
Pittsburgh, Pa. ...	537,476	2,086,988
Cleveland, Ohio..	446,491	1,314,255
St. Louis, Mo....	424,631	1,289,625
Minneapolis-St. Paul, Minn.	374,606	810,611
Washington, D. C.	368,403	619,690
Baltimore, Md. ..	326,692	961,209
Milwaukee, Wis..	272,042	747,075
Cincinnati, Ohio.	266,955	754,058
Kansas City, Mo.	256,228	621,380
Buffalo, N. Y.....	243,457	747,043
Providence, R. I..	221,552	707,511
Seattle, Wash. ...	184,471	446,549
Albany-Schenectady-Troy, N. Y.	168,222	416,896
Portland, Ore. ..	166,362	383,948
Atlanta, Ga.	154,683	392,654
Scranton-Wilkes-Barre, Pa.	153,528	652,975
Hartford-New Britain, Conn...	148,892	403,827
Indianapolis, Ind.	147,137	425,884
Rochester, N. Y...	143,145	394,964
Springfield-Holyoke, Mass..	138,350	416,147
Denver, Col.	132,963	319,644
New Orleans, La.	128,083	497,135
Dallas, Tex.	126,140	290,387
Columbus, Ohio..	124,805	343,288
Toledo, Ohio	122,685	354,578
Akron, Ohio	122,146	364,897
Houston, Tex. ...	120,383	327,067
Louisville, Ky....	114,703	396,471
Allentown-Bethlehem-Easton, Pa.	114,455	458,472

Market	Retail Sales Volume (Add 000)	Population Total
Youngstown, O...	107,240	366,018
Worcester, Mass..	106,528	336,664
Omaha, Neb.	106,066	271,065
New Haven, Conn.	104,570	303,837
Memphis, Tenn...	103,089	270,057
Lowell-Lawrence-Haverhill, Mass.	99,305	344,948
Norfolk-Portsmouth, Va.	91,994	294,310
Birmingham, Ala.	90,787	434,690
Syracuse, N. Y...	90,605	266,454
Dayton, Ohio	89,060	263,771
Miami, Fla.	88,719	132,189
San Diego, Cal..	85,364	182,070
Richmond, Va. ..	83,024	215,666
Bridgeport, Conn.	82,266	228,862
San Antonio, Tex.	81,841	274,304
Nashville, Tenn..	81,805	213,256
Utica, N. Y.....	76,403	235,158
Hazleton-Pottsville-Shenandoah, Pa.	73,443	361,688
Oklahoma City, Okla.	73,375	200,404
Fall River-New Bedford, Mass..	71,899	265,609
Des Moines, Iowa	70,888	155,321
Canton, Ohio ...	67,587	216,824
Wilmington, Del..	65,878	187,108
Fort Worth, Tex.	65,565	174,575
Grand Rapids, Mich.	65,283	211,940
Reading, Pa.	64,203	191,535
South Bend, Ind..	63,709	211,807
Salt Lake City, Utah	63,279	165,349
Trenton, N. J....	62,716	194,203
Tulsa, Okla.	62,149	175,081
Flint, Mich.	62,096	183,838
Spokane, Wash..	59,353	122,816
Wheeling, W. Va.	59,084	241,283
Tampa-St. Petersburg, Fla.	57,918	166,091
Duluth, Minn.-Superior, Wis..	57,227	150,817
Sacramento, Cal..	56,049	102,335
Peoria, Ill.	55,068	144,732
Binghamton, N. Y.	53,954	123,496
Harrisburg, Pa...	53,838	169,563
New Castle-Aliquippa-Ambridge, Pa.	52,512	214,558
Davenport, Ia.-Rock Island-Moline, Ill. ...	51,838	154,099
Jacksonville, Fla.	50,995	138,037
Fresno, Cal.	50,842	105,289
Clarksburg-Fairmont-Morgantown, W. Va....	49,568	204,091
Wichita, Kan. ..	49,464	111,110
Tacoma, Wash. ..	47,953	148,748
Atlantic City, N. J.	47,427	101,667
Lancaster, Pa.....	47,199	161,562
Chattanooga, Tenn.	46,486	150,715
Charleston, W. Va.	45,822	140,497
Saginaw-Bay City, Mich.	45,022	137,941
Long Branch-Asbury Park-Red Bank, N. J.	44,757	127,413
Charlotte, N. C..	44,732	187,868
Johnstown, Pa...	44,413	244,358
Phoenix, Ariz. ..	44,197	101,205
San Bernardino-Riverside-Redlands, Cal..	43,855	102,766
Fort Wayne, Ind..	43,441	122,663
Portland, Me. ...	43,393	97,833
Knoxville, Tenn..	43,012	135,714
Lansing, Mich....	42,679	98,391
Waterbury, Conn.	42,292	138,154
Huntington, W. Va.-Ashland, Ky. ..	42,186	161,792
Erie, Pa.	39,930	126,927
San Jose, Calif...	39,797	109,763
Racine-Kenosha, Wis.	39,629	126,975
Aurora-Elgin, Ill.	38,778	129,477
Little Rock, Ark..	37,665	113,137
Madison, Wis. ...	37,041	61,601
Lincoln, Nebr....	36,543	81,183
Rockford, Ill. ...	36,370	111,622
Evansville, Ind...	34,402	118,817
Stockton, Calif...	34,041	57,650
York, Pa.	33,937	110,023
Shreveport, La...	32,853	86,066
El Paso, Tex.....	32,120	105,667
Roanoke, Va. ...	31,829	98,124
Manchester, N. H.	30,956	85,804
Springfield, Ill...	29,933	82,367
Altoona, Pa.	29,734	109,335
Poughkeepsie, N. Y.	29,716	71,901
Sioux City, Ia....	29,297	83,110
Bluefield, W. Va.	29,031	143,946
Kalamazoo, Mich.	28,744	72,739
Terre Haute, Ind.	28,012	79,499
St. Joseph, Mo...	27,084	91,519
Greenville, S. C.	27,050	102,078
Bakersfield, Cal..	27,033	39,177
Topeka, Kan.	26,866	71,679
Springfield, Ohio.	26,852	77,502
Austin, Tex.	26,834	57,096
New London, Conn.-Westerly, R. I..	26,817	67,174
Mobile, Ala.	25,804	94,233
Muskegon-Muskegon Heights, Mich.	25,644	83,271
Niagara Falls, N. Y.	25,642	75,460
Newburgh, N. Y..	25,392	63,889
TOTAL CLASS "A" MARKETS ...	20,980,601	
% of U. S. Volume	63.27%	
% of Urban Market Volume..	73.62%	

Markets are listed in order of sales ranking. These sales ratings of course do not accurately correspond to population totals in each case.

Lose "Chipso" Appeal

The U. S. Supreme Court has recently refused to review the appeal of Procter & Gamble Co. against a decision of the U. S. Commissioner of Patents, canceling the soap company's trademark "Chipso." This case dates back to August 3, 1933, when the commissioner ruled that the P & G mark was deceptively similar to the trademark "Chase-O" previously registered by J. L. Prescott Co. It was ruled that the "Chipso" registration should be canceled and this decision was affirmed by the U. S. Court of Customs and Patent Appeals, April 29, 1935. In a subsequent action instituted against P & G by the Prescott company in the New Jersey courts, charging unfair competition, it was ruled that the two marks were not deceptively similar and the court refused to restrain Procter & Gamble from use of its mark. Early this year P & G sought an injunction to restrain the commissioner from canceling the "Chipso" registration, which the Court of Appeals refused to grant. It is this decision which the Supreme Court has just refused to review. There is now pending in the Circuit Court of Appeals, Third Circuit, an appeal by the Prescott company from the decision of the New Jersey Court referred to above, which decision held that the marks "Chipso" and "Chase-O" were not deceptively similar.

Ungerer and Voorhees Back

Frederick H. Ungerer, head of Ungerer & Co., New York, and

F. H. Ungerer

Kenneth G. Voorhees, Ungerer vice-president, arrived back in United States, October 10, concluding a European trip which took them to Italy, France and England. While abroad they visited a number of principals represented by the Ungerer firm in United States, including Charabot & Co., France, Botu D. Pappazoglou, Ltd., Bulgaria, S. & G. De Pasquale, Italy, Molino Copperossi, Italy, and Stafford, Allen & Sons, England.

Arthur Klein, perfumer for Allen B. Wrisley Co., Chicago, has recently left the employ of the company.

Editor's Correspondence

Editor,
Soap and Sanitary Chemicals,
Dear Sir:

It seems as though I have spent all of my life trouble-shooting in soap plants and believe me there is always plenty to shoot at in the average factory.

My first experience was during one of my vacations from college, in the good old times when mineral, or petroleum, soap stock first came into use. My uncle who was running the plant bought a lot of it, and chucked it into the soap kettle with the other fats to be saponified. Result—trouble in the glycerine plant and I was told to find it. I skimmed off considerable of the oil from the glycerine waters and took it into the front office. I nearly got a hiding from one uncle, and was patted on the back by the other one who had the sales and who could work up an alibi if the goods didn't move. The glycerine plants in those days make me think of the Rube Goldberg cartoons. There was a big open tank on the ground floor where the lye was heated, and then pumped into a vacuum chamber forty feet above where the evaporation took place, and then you got glycerine if it didn't go into the sewer first. We got some, but I thought our returns from our buyer were rather meager, so I dug into it, and—well, the buyer gave my uncles a mortgage on his plant to keep out of jail.

Believe me, I had plenty of troubles to shoot at working up from the days of foot pressing and hand wrapping; through power cutters, presses and wrapping machines, but I managed to hit enough bull's eyes to make it worth while and to earn a living.

I went up to Canada one time to straighten out one of my friends there. He had been a stock-broker and had bought out an old soap factory. He wasn't getting his yield. I found oil floating on top of the soap in the kettles. After the first few batches came off, he swore a miracle had been performed, he got so much soap. But he didn't go up to St. Anne de Beaupre, at that. After I'd been there a few days, he came in with a long face to say that the health department was going to close him up on account of smoke unless he spent about $3000 for new equipment. I said, "Wait! Don't buy anything." We dug up some fans and grates, and conduits, changed the coal, and got a pat on the back from the inspector, who said, "Keep it that way. Goodbye."

In my trouble-shooting, I got into another plant. Their crude glycerine smelt like fertilizer, samples of the glycerine waters drawn by the chemist showed right treatment, but the treating tank material was badly mixed and left pockets of unmixed chemicals. We put in a new agitator, and everything O K'd. I had traveled a thousand miles to show them this. I had two cases like this—both had fine plants but they hadn't looked far enough for their trouble.

Another chap was making soap powder. All equipment was fine, but his soap powder turned out like sand. He had missed one important step to make it fluffy and impalpable.

Such were the trouble spots that we straightened out without too much digging. About the ones we didn't get straightened out, I'd rather forget.

TROUBLE SHOOTER

Award Lever Scholarship

D. H. Spranklin, son of the managing director of Belvedere Lodge Laundry, Brixton, London, has been awarded the Leverhulme Laundry Scholarship for 1938. Mr. Spranklin will study at Oxford University for his Bachelor of Science degree.

Argentine Soap Consumption

A reader of *Soap* in Montevideo, Uruguay, writes in to correct our recent figures on Argentine soap consumption. We quoted 39,000 lbs. as being the total annual consumption in Argentina but our reader advises that the sales of five firms alone amount to 137,000 lbs. annually.

Soap Employment Index

The index of employment in the soap industry compiled by the U. S. Dept. of Labor, registered 90.7 for August 1938, as compared with 87.6 for July 1938 and 94.1 for August 1937, based on 100 as the three-year average for the period 1923-1925. The payroll index for August 1938 was 91.4 as compared with 87.1 for July 1938 and 94.0 for August 1937.

British Soap Executive Dies

Sir Arthur Crosfield, Bart., famous British soap manufacturer, was killed recently by a fall from a train between Les Arca and Le Muy, France. Sir Arthur, who was 73, was formerly chairman of Joseph Crosfield and Co., Ltd., Warrington soap firm. From 1906 to 1910 he sat in the House of Commons as Liberal member for Warrington, and in 1905 he won the amateur golf championship of France.

Soap Subject to 104 Taxes

According to a recent survey of the Emergency Consumers' Tax Council of New Jersey, an ordinary cake of facial soap is taxed by 104 hidden levies accounting for 10.3 per cent of the purchase price. The hidden taxes are the result of levies on the tallow producer, perfume maker, chemical manufacturer, wrapper factory, soap company, transportation agencies, soap wholesaler and the retail store.

Methyl Ionone for Soap Use

Methyl ionone is now offered as a low-priced, quality ingredient suitable for use in toilet soap perfumes. It is sold by Givaudan Delawanna, Inc., under the trade name of "Raldeine S.P." Several ionones are also sold under the trade name of "Irisones." *Givaudanian*, September, 1938.

Hubert C. Verhey Dies

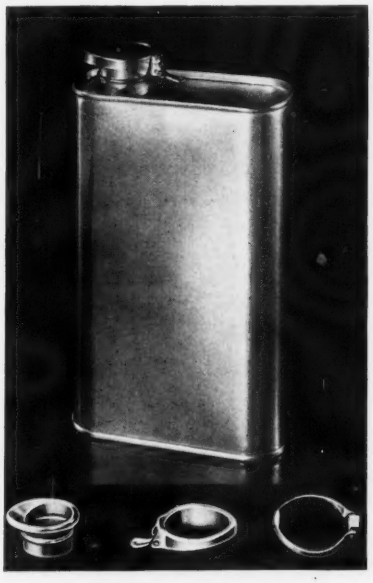
Hubert C. Verhey, Jr. of the Philadelphia office of Lever Bros. Co., died in a Philadelphia hospital recently. He was 26 years of age.

New Equipment

IF YOU want additional information on any of the items described below or if you want any of the bulletins, catalogs, etc., write to the MacNair-Dorland Co., Inc., 254 West 31st St., New York, mentioning the number of the item.

496—New Pouring Cap

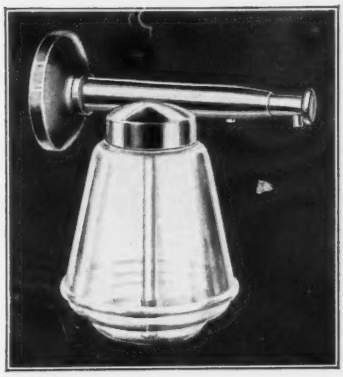
Williams Sealing Corp., Decatur, Ill., has just introduced the "Pour-N-Seal Cap and Nozzle" for oval pouring spouts. The new cap is hooked down on the pouring spout at the point end of the spout adjacent to the pouring lip, with a



lever lock preventing leakage. The cap is said to be easy to remove and replace. simply by a turn of the lever. It will be supplied in sizes to fit various types of general line cans. Williams has also announced a new inner seal for tamper-proofing containers fitted with the cap and nozzle. It is said to be much easier to remove than previous tamper-proofing devices.

497—New Soap Dispenser

American Dispenser Co., New York, has just introduced a new push-in type dispenser in which the soap chamber is below the valve level. This effectively eliminates drip-



ping, as the soap must be pumped from the bottom of the globe. The piston, valve, spring and all moving parts are of stainless steel, eliminating danger of rusting or tarnishing. Chromium plate is also available. The dispenser is locked to the wall, with no bolts or screw heads exposed.

498—New Portable Filter

T. Shriver & Co., Harrison, N. J., have just introduced a new portable filter equipped with rubber filter chambers and a diaphragm pump with rubber coated liquid ends. It is especially designed for use on fluids that may be injurious to metal or that may be affected by contact with metal. It offers a total filtering area of 5.5 square feet and a filtering capacity of 135 gallons per hour.

Publications

499—Packaging Booklet

Hinde & Dauch Paper Co., Sandusky, Ohio, has just issued a new booklet, "Facts About Shipping Boxes" which tells the story of the modern corrugated shipping box. Listed are six factors said to determine shipping box quality, as follows: raw materials, super processing, engineering research, designing facilities, factory locations and service. Copies of the booklet are available to readers of *Soap*.

500—Folder on Kettles

Patterson Foundry & Machine Co., East Liverpool, O., has just issued a folder describing Patterson electrically heated kettles. Copies available.

501—Flooring Repair

Flexrock Co., Philadelphia, has issued a folder describing how concrete flooring breaks down and showing the proper method of repairing these broken places. Pictorial illustrations also give instructions for resurfacing entire floors, whether of concrete or wood construction. Copies available.

502—D. & O. Price List

Dodge & Olcott Co., New York, has just issued a new catalog and price list on its line of essential oils and aromatic chemicals as of October, 1938. Copies available.

503—Uses of Inconel

International Nickel Co., New York, has just issued a bulletin—No. T-7, giving detailed information as to properties and uses of "Inconel." Corrosion resistance and working properties are given special consideration. A number of additional bulletins on monel, nickel and nickel alloys are also listed.

504—New White Oils

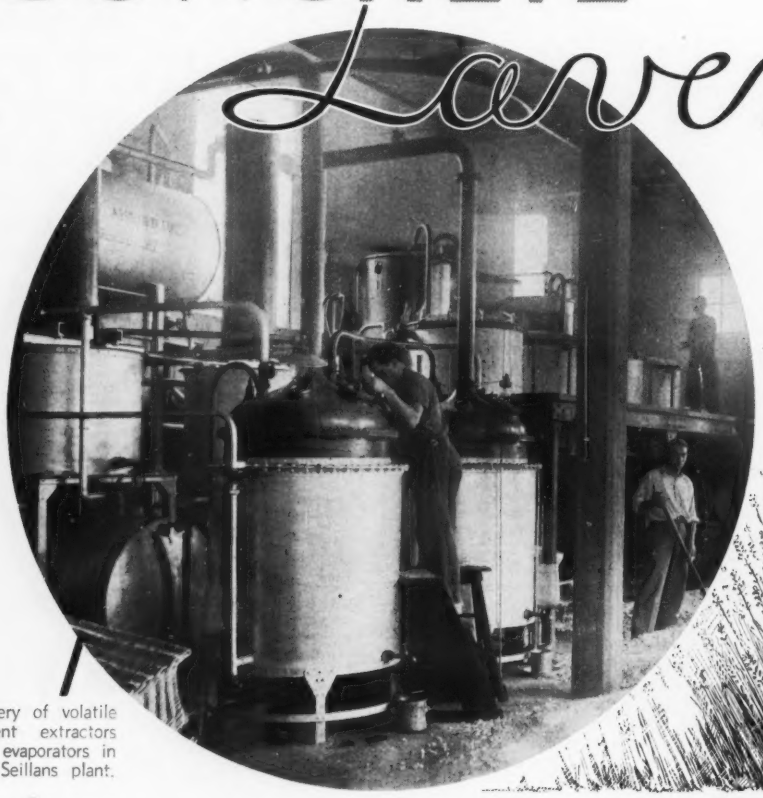
Pennsylvania Refining Co., Butler, Pa., has just issued a new folder describing its improved, oxidation-resistant white oils.

Claim New Use for "Gunk"

Curran Corp., Malden, Mass., reports that its self-emulsifying solvent, "Gunk" possesses unusual degreasing properties for the cleaning of aluminum engine castings. They report that it is finding use in the cleaning of airplane motors which have cast aluminum engine cases. Its use is said to give the castings a new silver white appearance without any chemical effect or loss of weight of the metal.

CONCRETE *Lavender*

(COLORLESS)



Battery of volatile solvent extractors and evaporators in our Seillans plant.

Imparts LASTING FRAGRANCE at LOWER COST

ONE of the outstanding specialties of our Seillans plant is CONCRETE LAVENDER COLORLESS. Its use in soap produces a smoother, stronger and more enduring fragrance than costlier distilled lavender oils. These advantages are gained through our process of manufacture which effects **complete** extraction of the flower's natural odorizing principles as well as its fixatives.

In most cases, CONCRETE LAVENDER COLORLESS combined with a good distilled lavender oil can be relied upon for best results. This combination produces a superior, more lasting fragrance at lower cost—a soap, more appealing to the customer and more profitable to you. Why not write us for a free sample of CONCRETE LAVENDER COLORLESS, with recommendations for its use?

FRITZSCHE BROTHERS, Inc.

PORT AUTHORITY COMMERCE BLDG., 76 NINTH AVENUE, NEW YORK, N. Y.

BRANCH STOCKS

BOSTON CHICAGO LOS ANGELES ST. LOUIS TORONTO, CANADA MEXICO, D. F.

FACTORIES AT CLIFTON, N. J. AND SEILLANS (VAR) FRANCE

B.I.M.S. Final Golf Outing

The final golf tournament of the 1938 season was held by B.I.M.S. on October 6th at the Ridgewood Country Club, Ridgewood, New Jersey. In spite of rain there were 118 members and guests on hand and the fact that many of them played golf is testified to by the list of 29 prize winners. Among the winners were the following: H. E. Carnes, American Home Products Co.; W. A. Busch, Ungerer & Co.; Dudley Schwartzman, Wisley Olsen, and C. B. Robbins of Allen B. Wrisley Co.; Irving S. Goodwin, Yardley & Co.; Charles Tanner, Liggett Drug Co.; Frank Fanning of Malmstrom & Co.; and R. J. Bjork, L. Sonneborn Sons.

Chicago Perfumers Meet

The Chicago Perfumery, Soap and Extract Association held the first luncheon meeting of the organization since last May on October 4th at the Bismark Hotel. The Bismark was chosen as the new meeting place by the president and board of directors, following a mail ballot. John S. Hall, the association's attorney spoke briefly regarding legislative developments.

Organize Coloroid Co.

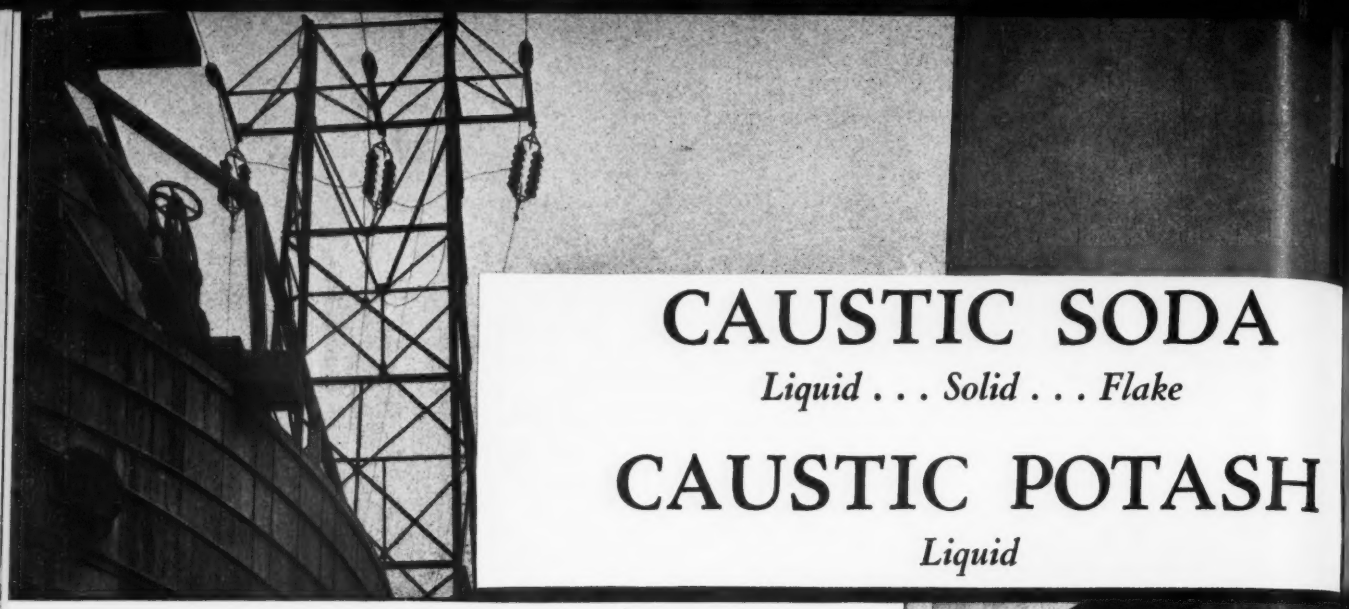
Coloroid Co., Cleveland, has just been organized by E. M. Houghton to take over the business of Dura-Colors, Inc., and to continue its business of coloring glass containers. Machinery and equipment have been moved to 1200 West 80th St., Cleveland.

Offer Premium with "Pebeco"

Lehn & Fink Products Corp., Bloomfield, N. J., is currently offering a free pair of scissors as a special premium with each purchase of a large tube of "Pebeco" tooth paste.

Monsanto Vice-President Dies

Russell J. Hawn, vice-president of Monsanto Chemical Co., died on October 14th at his home in Birmingham, Ala., after an illness of several months. Mr. Hawn had been in charge of operations for the Monsanto phosphate division.



CAUSTIC SODA

Liquid . . . Solid . . . Flake

CAUSTIC POTASH

Liquid

CARBON TETRACHLORIDE

99.995%

"EARLIEST PRODUCTION IN THIS COUNTRY"

TRI-SODIUM PHOSPHATE
DI-SODIUM PHOSPHATE

ALSO MIXED DETERGENTS COMPOUNDED
TO MEET USERS' OWN SPECIFICATIONS

TETRA SODIUM PYRO PHOSPHATE

(Neutral Pyro)

AN OPPORTUNITY TO SUBMIT SAMPLES AND QUOTATIONS IS SOLICITED

WARNER CHEMICAL COMPANY

Pioneer Producers since 1886

STANDARD WARNER CHEMICALS

CHRYSLER BUILDING NEW YORK CITY
155 EAST SUPERIOR STREET, CHICAGO
70 RICKARD STREET, SAN FRANCISCO

Contracts Awarded

San Francisco Soap Awards

Newell-Gutradt Co., San Francisco, was awarded a contract on a quantity of toilet soap at 2.5c in a recent opening by the U. S. Army Quartermaster at Ft. Mason, San Francisco. On a quantity of naphthalene flakes, Braun-Knecht-Heimann Co., San Francisco, was awarded the contract at 6.5c.

Jeffersonville Soap Awards

Peaslee-Gaulbert Corp., Louisville was awarded the contract on 8,000 lbs. of naphthalene flakes at $5.23 in a recent opening by the U. S. Army Quartermaster at Jeffersonville, Ind. On 1,200 pts. metal polish, Scranton Chemical Co., Scranton, Pa., was awarded the contract at 7.2c. On 6,000 lbs. castile soap, Archer-McCann Co., Louisville, was awarded the contract at 10.75c.

Air Corps Soap Awards

Nielco Chemical Co., Detroit, was awarded the contract on 3,000 cans of scouring powder at 12.5c in a recent opening by the supply division of the U. S. Army Air Corps at Wright Field, Ohio. On 32,000 cakes of soap, Newell-Gutradt Co., San Francisco, was awarded the contract at 1.753c f.o.b. plant. On 3,100 gals. liquid hand soap, R. M. Hollingshead Corp., Camden, N. J., was awarded the contract at 25.5c dom. f.o.b. plant and 27.5c exp. f.o.b. plant. Swift & Co., Chicago, was awarded the contract on 23,000 lbs. powder soap at 2.49c and 1,600 lbs. powder soap at 2.09c.

Jeffersonville Soap Awards

Colgate - Palmolive - Peet Co., Jersey City, N. J., was awarded the contract on 15,000 lbs. soap chips at 6.6c a lb. in a recent opening by the U. S. Quartermaster at Jeffersonville, Ind. for various items for delivery to Ft. Knox, Ky. and Ft. Hayes, Columbus, Ohio. On 9,000 lbs. of laundry soap, S. Strunz & Son, Pittsburgh, were awarded the contract at 6.45c per lb. Solvay Sales Corp., Cincinnati was awarded the contract on 8,000 lbs. of laundry soda at 1.64c and 22,400 lbs. of laundry soda at 1.92c.

Ft. Sam Houston Polish Award

Imperial Products Co., Philadelphia, was awarded the contract on 800 qts. of metal polish at 14c in a recent opening by the U. S. Army Quartermaster at Ft. Sam Houston, Texas.

Emery Loses Patent Suit

A patent suit filed against Fenton United Cleaning & Dyeing Co., Cincinnati, by Emery Industries, Inc., charging infringement of the Emery-owned Reddish patent covering the "Sanitone" process of dry cleaning, was dismissed by District Judge John H. Druffel October 5th. The patent is based on use of water in connection with solvents in dry cleaning operations. Since the suit was thrown out on the defense of non-infringement, the validity of the patent was not under question. Soap makers have followed the case with much interest as if the Reddish patent is proved valid the use of their dry cleaning soaps in cleaning operations will be curtailed. Several soap makers appeared as witnesses for the defense.

Market New Wax Cleaner

Phillips Petroleum Co., Bartlesville, Okla., has just introduced a new product designed to prepare car surfaces for waxing. It is sold under the name "Phillips 66 Prewax Cleaner."

Offer Cedar Mop with "Dreft"

Procter & Gamble Co. is currently featuring in California newspapers an offer of a $1.25 O'Cedar mop in connection with the sale of "Dreft." The mop is given for fifty cents and one "Dreft" box top.

Oil Trades Annual Dinner

The Oil Trades Association of New York holds its annual formal dinner on November first at seven-thirty o'clock at the Waldorf-Astoria Hotel, New York. A reception at the hotel precedes the dinner.

D-12 Meets Oct. 31-Nov. 1

Committee D-12 of the American Society for Testing Materials, empowered to draft standard specifications and testing methods for soaps and detergents, met in fall session, October 31st and November 1st, at the Hotel New Yorker, New York, with Chairman Harry P. Trevithick presiding. The schedule for the meeting, to be reported fully next month, follows:

Monday, Oct. 31st, 1938

Time	*Sub-committee*	*Section*	*Name*
9:30—11:30 A.M.	II	E	Sulph. Detergent-Spec.
9:30—11:30 A.M.	II	F	Spec. Detergent-Spec.
11:30— 1:00 P.M.	I	D	Spec. Detergent-Methods
11:30— 1:00 P.M.	I	A	Soaps-Methods
2:00— 4:30 P.M.	II	C	Straight Soaps-Spec.
3:30— 4:30 P.M.	(I	C)	
	(II	D)	Dry Cleaning-Soaps
4:30— 5:30 P.M.	Advisory Committee		

Tuesday, Nov. 1st, 1938

9:00—11:00 A.M.	II	B	Built Soaps-Spec.
9:30—11:30 A.M.	II	G	Metal Cleaners-Spec.
11:30— 1:00 P.M.	II	A	Textile Soaps-Spec.
11:00— 1:00 P.M.	III		Definitions
1:00 P.M.	LUNCHEON		
2:30 P.M.	Subcommittee Meetings and General Meeting		

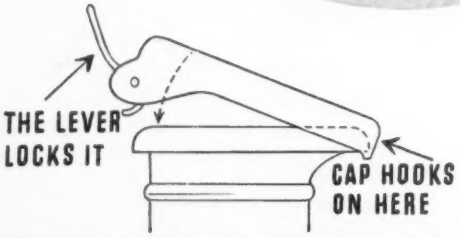
AT LAST!

A POURING SPOUT WITH A CLOSURE THAT REALLY SEALS AND RESEALS

NO LONGER do you have to wish there was some way to get a satisfactory seal at the *pouring point* of an oval pouring spout. It's here! The new POUR-N-SEAL Cap and Nozzle does the trick!

This amazing new closure provides a positive seal at *all* points of the spout—even at the pouring point. The cap is firmly secured by the simple-acting POUR-N-SEAL Lever Lock. And yet it is easy to remove. A flip of your finger, and it's off. . . . It can be replaced just as easily and locked into place again with *the same positive seal!*

The POUR-N-SEAL Cap and Nozzle is the first really satisfactory cap for sealing and re-sealing oval pouring spouts—simple, yet inexpensive. It is the last word in closure development, the result of years of research and practical testing by the makers of the famous Kork-N-Seal. You should get all the facts about POUR-N-SEAL today. The coupon below will bring them promptly, with samples and prices. Mail it now!



The POUR-N-SEAL Cap is hooked down on the POUR-N-SEAL Nozzle directly at the point. The Cap pivots about this point, being drawn downward and backward by the POUR-N-SEAL Lever Lock, providing a positive seal. Easy to remove—easy to replace. Caps and Nozzles are supplied to can manufacturers.

POUR-N-SEAL CAP—*invented, patented and manufactured by the makers of the famous* **KORK-N-SEAL**

MAIL THIS CONVENIENT COUPON

WILLIAMS SEALING CORPORATION S-11
(Div. of Crown Cork & Seal Co.)
Decatur, Illinois.

Gentlemen: Please send us, without any obligation, full details about the new POUR-N-SEAL Cap and Nozzle for Oval Pouring Spouts, with samples and prices.

Name .....

Address .....

City ..... *State* .....

POUR-N-SEAL

POSITIVE SEALING
CONTROLLED POURING

New Trade Marks

The following trade-marks were published in the October issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Marks Filed

MARY SCOTT ROWLAND'S OLIVE OIL SOAP—This in solid and shaded letters on decorative label design describing olive oil soap. Filed by Mary Scott Rowland, New York, July 5, 1938. Claims use since 1932.

TRU—This in solid letters describing general household cleaner. Filed by Stanlane Co., Chicago, July 25, 1938. Claims use since July 5, 1938.

SNOW DROP—This oval-shaped reverse plate describing general household cleaner. Filed by Snowdrop Patrick Co., Chicago, August 6, 1938. Claims use since June 1, 1937.

HALO—This in solid letters describing shampoo. Filed by Colgate-Palmolive-Peet Co., Jersey City, Aug. 9, 1938. Claims use since Jan. 4, 1915.

KIL-MOE—This in solid letters describing insecticides. Filed by Samuel A. Halaby, Rochester, N. Y., Aug. 18, 1938. Claims use since May 15, 1938.

NUTROL—This in solid letters describing liquid preparation for floors. Filed by Woburn Spencer & Co., New Orleans, June 14, 1938. Claims use since Feb. 15, 1931.

ETSUL—This on oval reverse plate describing general household cleaner. Filed by Etsul Synthetic Products, Detroit, Aug. 15, 1938. Claims use since July 6, 1938.

LADY ALICE—This in solid letters below fanciful drawing of woman's head describing soap. Filed by Piggly Wiggly Corp., Cincinnati, Aug. 17, 1938. Claims use since July 11, 1938.

TINSIL—This in solid letters describing silver polish. Filed by E. Keller & Sons, Allentown, Pa., Aug. 19, 1938. Claims use since Aug. 12, 1938.

MARY SCOTT ROWLAND—This in script letters below drawing of coat-of-arms on label design describing shampoo. Filed by Mary Scott Rowland, New York, June 16, 1938. Claims use since 1887.

SUPREME—This in solid letters describing pre-wax cleaner. Filed by W. T. Grant Co., New York, Apr. 12, 1938. Claims use since May 28, 1937.

PRIME—This in solid letters describing cleaning preparation for painted and enameled surfaces. Filed by Prim Corp., St. Louis, July 29, 1938. Claims use since July 25, 1938.

Geometric design in gold and blue colors describing moth exterminator and deodorizer. Filed by Evans Manufacturing Co., Cleveland, June 18, 1938. Claims use since Sept. 1, 1936.

DIOX O DENT—This in solid letters describing dentifrices. Filed by Martin W. Pretorius, Burbank, Cal., Jan. 11, 1937. Claims use since Apr. 1, 1935.

NAWA—This in solid letters on decorative design describing shampoo. Filed by the Nawa Co., Washington, D. C., May 17, 1938. Claims use since Oct. 25, 1937.

PARATOX—This in solid letters describing insecticide. Filed by Lethelin Products Co., Wood Ridge, N. J., July 27, 1938. Claims use since July 10, 1934.

SAN-A-SHOE—This in letters resembling script describing deodorants and disinfectants. Filed by Caravel Products Co., New York, July 30, 1938. Claims use since July 18, 1938.

THE LITTLE PLUMBER IN THE CAN—This in solid letters with illustration of plumber describing drain and sewer pipe cleaner. Filed by C. B. Dolge Co., Westport, Conn., July 30, 1938. Claims use since June 14, 1921.

PAL-EZE—This in solid letters on label describing liquid floor wax. Filed by Krom Laboratories, Kingston, N. Y., Aug. 11, 1938. Claims use since July 30, 1935.

BROWN'S LANE SOAP—This in solid letters describing soap product for general cleaning purposes. Filed by James Brown, Mt. Vernon, Ohio, June 2, 1938. Claims use since Jan. 1, 1938.

BENOCLOR—This in solid letters describing chemical for the control of bacteria. Filed by Cloroben Corp., Jersey City, May 26, 1938. Claims use since Apr. 1, 1937.

CALCIFO—This in solid letters describing dentifrice. Filed by Calcifo Chemical Co., Monongahela, Pa., July 25, 1938. Claims use since Apr. 1, 1938.

MASTER X—This in solid letters within decorative design describing disinfectant. Filed by Master Chemical Co., Portland, Oreg., July 27, 1938. Claims use since Jan. 14, 1936.

J. R. WATKINS—This in script letters below portrait drawing of J. R. Watkins describing floor polish. Filed by J. R. Watkins Co., Winona, Minn., May 21, 1938. Claims use since Mar. 2, 1938.

EMERY—This in stenciled letters describing detergents. Filed by Emery Industries, Cincinnati, Aug. 11, 1938. Claims use since 1840.

ROYAL DERBY—This in letters resembling script describing shoe dressings. Filed by Everett and Barron Co., Providence, R. I., Aug. 23, 1938. Claims use since 1920.

NE-O-KO—This in solid letters describing deodorant. Filed by Dr. V. L. Turrill Clinic, Tulsa, Okla., July 26, 1938. Claims use since June 16, 1938.

ACE—This in solid letters with "A" larger than other letters describing insecticide. Filed by Midwest Oil Co., Minneapolis, July 29, 1938. Claims use since Mar. 31, 1930.

LUST-R-GLO — This in solid letters describing automobile polish. Filed by Henschel Supply Co., New York, June 20, 1938. Claims use since April 10, 1938.

DOLORES ARLYNE — This in script letters on decorative label design describing shampoo. Filed by Daw Drug Co., Rochester, N. Y., Aug. 1, 1938. Claims use since January, 1938.

ALFRAMINE—This in solid letters describing textile soaps. Filed by Michel Export Co., New York, Jan. 20, 1938. Claims use since Oct. 1, 1937.

DIP-WIPE—This in shaded letters on label design describing jewelry cleaner. Filed by Snap Chemical Co., Chicago, Apr. 16, 1938. Claims use since Mar. 26, 1938.

SAVE-TOIL — This on reverse plate of triangular design describing general household cleaner. Filed by Apex Chemical Manufacturing Corp., Detroit, Aug. 5, 1938. Claims use since July 1, 1938.

SENSAY—This in solid letters describing soap. Filed by Central Tea Co., Detroit, Aug. 25, 1938. Claims use since January, 1934.

KIS-KEE—This in letters resembling script describing shampoo. Filed by Turmac Specialties Co., Berkeley, Calif., Aug. 8, 1938. Claims use since June 9, 1938.

FUN-BATH—This in solid letters describing bath salts. Filed by William Steinke, New York, Aug. 20, 1938. Claims use since Aug. 1, 1938.

ODYKE—This in broken letters above drawing of a moth describing a mothproofing preparation. Filed by Kydo Mothproofing Corp., Boston, Aug. 24, 1938. Claims use since Aug. 8, 1938.

R M S—This in solid letters describing insecticides. Filed by California Spray-Chemical Corp., Wilmington, Del., Aug. 26, 1938. Claims use since June 1, 1938.

Trade Marks Granted

360,734. Preparation for Cleaning Glass. Coastal Chemical Co., Savannah, Ga. Filed October 29, 1937. Serial No. 399,070. Published July 12, 1938. Class 4.

360,737. Detergent. Phosphate Mining Co., New York. Filed November 9, 1937. Serial No. 399,514. Published July 19, 1938. Class 4.

360,776. Cleansing Powder. Crown Products Corp., San Francisco. Filed March 5, 1938. Serial No. 403,720. Published July 19, 1938. Class 4.

360,957. Soap. Frailey Products, Inc., Norwalk, Conn. Filed November 29, 1937. Serial No. 400,230. Published July 26, 1938. Class 4.

360,964. Liquid Waxing Compounds. Roselux Chemical Co., New York. Filed December 28, 1937. Serial No. 401,318. Published July 26, 1938. Class 16.

361,015. Cleaning Compound. Roselux Chemical Co., New York. Filed May 3, 1938. Serial No. 405,971. Published July 26, 1938. Class 4.

361,128. Tooth Paste. Sheffield Co., New York. Filed May 11, 1937. Serial No. 392,610. Published July 26, 1938. Class 6.

361,131. Shampoo. William Arthur Hurst, Avera, Miss. Filed June 8, 1937. Serial No. 393,808. Published July 19, 1938. Class 6.

361,148. Shaving Cream. William Wolf, Newark, N. J. Filed November 27, 1937. Serial No. 400,216. Published August 2, 1938. Class 4.

361,152. Detergents. American Disinfecting Co., Sedalia, Mo. Filed December 10, 1937. Serial No. 400,676. Published August 2, 1938. Class 4.

361,161. Moth Killers and Roach Killers. Mallinckrodt Chemical Works, St. Louis. Filed January 5, 1938. Serial No. 401,580. Published July 19, 1938. Class 6.

361,163. Preparation for Killing Rats. One-Spot Co., Elkridge, Md. Filed January 14, 1938. Serial No. 401,909. Published July 19, 1938. Class 6.

361,178. Water Softener. Monroe Chemical Co., Quincy, Ill. Filed March 2, 1938. Serial No. 403,605. Published August 2, 1938. Class 6.

361,191. General Cleaner. Pete Biondo, St. Louis. Filed March 30, 1938. Serial No. 404,628. Published August 2, 1938. Class 4.

361,204. Shampoo. United Distributors, Inc., Louisville, Ky. Filed April 15, 1938. Serial No. 405,335. Published August 2, 1938. Class 6.

361,208. Shampoo. Elizabeth Gould, Brooklyn. Filed April 20, 1938. Serial No. 405,502. Published July 26, 1938. Class 6.

361,209. Drain Pipe Cleaner. John Sunshine Chemical Co., Chicago. Filed April 22, 1938. Serial No. 405,624. Published August 2, 1938. Class 6.

361,211. Cleansing and Deodorizing Preparation. Arwell, Inc., Waukegan, Ill. Filed April 23, 1938. Serial No. 405,628. Published August 2, 1938. Class 6.

361,215. Preparation for Killing Bed Bugs. B. Heller & Co., Chicago. Filed April 30, 1938. Serial No. 405,878. Published July 26, 1938. Class 6.

361,223. Shampoo. Paragon Distributing Corp., New York. Filed May 7, 1938. Serial No. 406,098. Published August 2, 1938. Class 6.

361,224. Antiseptic. Scott & Bowne, Bloomfield, N. J. Filed May 7, 1938. Serial No. 406,103. Published July 26, 1938. Class 6.

361,228. Tooth Paste. Lembert Pharmacal Co., Wilmington. Filed May 12, 1938. Serial No. 406,256. Published August 2, 1938. Class 6.

361,237. Insecticides. Extermital Chemical Co., Dayton, Ohio. Filed May 16, 1938. Serial No. 406,407. Published July 26, 1938. Class 6.

361,245. Automobile Cleaning Preparations. Chester J. Stfbenne, Denver. Filed May 19, 1938. Serial No. 406,540. Published August 2, 1938. Class 16.

361,286. Insecticides. General Chemical Co., New York. Filed June 1, 1938. Serial No. 406,969. Published August 2, 1938. Class 6.

Raw Material Markets

(As of October 27, 1938)

NEW YORK—The market for raw materials for the soap and sanitary chemicals industry continued along narrow lines during the period just ended, consumers still interested apparently in merely filling current or nearby requirements. There were few changes in quotations, and these were principally downward.

Coconut Oil

The market for crude coconut oil was generally inactive during most of this period. Quotations were shaded ⅛c per pound. The reduction in prices failed to stimulate buying interest. While occasional inquiries were noted, actual business was apparently limited to unimportant quantities. There were reports of a fair movement of crude oil into consuming channels on unfilled contracts, however, and toward the close of the period some evidence of new buying activity. This was especially true on the Pacific Coast where substantial bookings of copra were reported to have been made.

Corn Oil

There were reports of some increase in buying interest for crude corn oil, but offerings of spot oil were generally light and there were apparently few transactions. Quotations were shaded ¼c per pound. The government estimated that the corn crop would be somewhat less than a year ago.

Olive Oil

Denatured olive oil was reduced in price to a basis of 92c to 95c per gallon. There were reports of a fair inquiry though consumers presumably were not disposed to purchase in advance of current needs. There was no change in quotations for olive foots.

Tallow

There were reports of an increase in the volume of inquiries for moderate quantities of spot tallow, but consumers were still apparently inclined to hold off pending developments in outside markets. The last transactions reported were at 5¼c per pound for extra, no change from the last period. In the market for grease, quotations were also maintained where they stood at the close of the previous period. There were reports of a fair inquiry from local consumers.

PERFUMING MATERIALS

Anise Oil

The price of anise oil moved downward again early this period due to competition and the still unsettled condition of the market.

Toward the close of the period, however, prices for shipment increased due to the war situation in Canton. The Japanese were succeeding in their objective to cut off that city from the rest of China. Open market offerings were withdrawn, and sales were confined to regular customers with restrictions as to quantity.

Prices on cassia oil were also affected by the war in China. The danger of interruption of shipments caused dealers to become cautious in making sales. Prices were jumped to a basis of 90c to 96c per pound.

Bergamot Oil

Spot offerings of good quality oil were said to be obtainable at prices low as $3.65 per pound. The range according to the brand desired was up to $3.85. The market was said to be a routine one, with buyers purchasing immediate requirements freely, but not disposed to anticipate more distant needs.

Camphor Oil

Sassafrassy oil was reported to be very difficult to obtain. As a result prices were sharply increased to a basis of 25c per pound in drums and 27c in cans. White oil also increased in price to a basis of 20c to 21c per pound. Replacement offerings were said to be lacking.

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Wilbur Kelso Dies

Wilbur M. Kelso, president of the Green Oil Soap Co., Chicago, died at his home in that city on October 24 after an illness of a year. He underwent a severe operation last January from which he never recovered. He is survived by his wife, Mrs. Lucille Hicks Kelso, and a daughter, Mrs. Ruth Kelso Peterson. Mr. Kelso was born in Morgantown, Ind., and was a graduate of the University of Chicago. He was widely known in the soap specialty field and was the author of an article on potash soaps which appeared in the October issue of *Soap*. He was the contributor of the Colonial Village at the Chicago World Fair of the home soap making exhibit which at the close of the Fair, he presented to the Museum of Science and Industry.

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Offer Hydrogenated Rosin

Hercules Powder Co., Wilmington, announced last month the commercial production of hydrogenated rosin which will be sold by Hercules under the name "Staybelite." It is said to eliminate the tendency of normal rosin to oxidize and to become brittle and yellow with age. The new material is much lighter in color than the lightest rosins previously available and will not darken on exposure to light.

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Dr. Verley in U. S.

Dr. Albert Verley of Etablissements Albert Verley, Ile St. Denis, France represented in United States by Albert Verley, Inc., Chicago and New York, arrived in New York, October 20th on the *S. S. Champlain*. He stayed in New York only a few days and then left for the Chicago offices to confer with David Bennett, head of Albert Verley, Inc.

Raw Material Prices

(As of October 27, 1938)

Minimum Prices are for car lots and large quantities. Price range represents variation in quotations from different suppliers and for varying quantities.

Chemicals

Acetone, C. P., drums	lb.	$ .05¾	$ .06¼
Acid, Boric, bbls., 99½%	ton	106.00	138.00
Cresylic, drums	gal.	.73	.74
Low boiling grade	gal.	.78	.80
Oxalic, bbls.	lb.	.10¾	.12
Adeps Lanae, hydrous, bbls.	lb.	.16	.18
Anhydrous, bbls.	lb.	.17½	.19
Alcohol, Ethyl, U.S.P., bbls.	gal.	4.56½	4.61½
Complete Denat., SD 1, drums, ex.	gal.	.31	.33
Alum. Potash lump	lb.	.036	.039
Ammonia Water, 26°, drums	lb.	.02	.02¼
Ammonium Carbonate, tech., bbls.	lb.	.08	.12½
Bentonite 1, works	ton	—	16.00
Bentonite 2, works	ton	—	11.00
Bleaching Powder, drums	100 lb.	2.25	3.35
Borax, pd., cryst., bbls., kegs	ton	58.00	74.00
Carbon Tetrachloride, car lots	lb.	.06¾	.07¼
L. C. L.	lb.	.07¾	.08¼
Caustic, see Soda Caustic. Potash Caustic			
China Clay, filler	ton	10.00	25.00
Cresol, U.S.P., drums	lb.	.10½	.11
Creosote Oil	gal.	.13½	.14½
Feldspar (200 to 325 mesh)	ton	14.00	15.00
Formaldehyde, bbls.	lb.	.05¾	.06¼
Fullers Earth	ton	10.00	30.00
Glycerine, C. P., drums	lb.	.14¼	.14¾
Dynamite, drums	lb.	—	Nom.
Saponification, drums	lb.	.09½	.09¾
Soap, lye, drums	lb.	.08½	.08¾
Hexalin, drums	lb.	—	.30
Kieselguhr, bags	ton	—	35.00
Lanolin, see Adeps Lanae.			
Lime, live, bbls.	per bbl.	—	2.45
Mercury Bichloride, kegs.	lb.	.99	1.13
Naphthalene, ref. flakes, bbls.	lb.	.05¾	.06
Nitrobenzene (Wyrhane) drums	lb.	.08	.09
Paradichlorbenzene, bbls., kegs	lb.	.12½	.15½
Petrolatum, bbls. (as to color)	lb.	.02⅝	.03⅞
Phenol (Carbolic Acid), drums	lb.	.14½	.15½
Pine Oils, bbls.	gal.	.46	.59
Potash, Caustic, drums	lb.	.07	—
Flake	lb.	.07¼	.07½
Potassium Carbonate, solid	lb.	.06½	.06¾
Liquid	lb.	.03	.03½
Pumice Stone, powder	100 lb.	3.00	4.00
Rosins (600 lb. bbls. gross for net)—			
Grade B to H, basis 280 lbs.	bbl.	5.25	6.50
Grade K to N	bbl.	6.52	6.95
Grade WG and K	bbl.	7.25	6.52
Wood FF Spot	bbl.	5.80	6.50
Rotten Stone, pwd. bbls.	lb.	.01¾	.02½
Silica	ton	20.00	27.00
Soap, Mottled	lb.	.04⅛	.04½
Olive Castile, bars	lb.	.22	.26
Olive Castile, powder	lb.	.28	.33
Powdered White, Neutral	lb.	.20	.22
Olive Oil Foot, bars, 68-70%	lb.	.09	.09½
Green, U.S.P.	lb.	.11	.13½
Tallow Chips, 88%	lb.	.07½	.08½
Soda Ash, cont., wks., bags, bbls.	100 lb.	1.08	1.35
Car lots, in bulk	100 lb.	—	.90
Soda Caustic, cont., wks., solid	100 lb.	—	2.30
Flake	100 lb.	—	2.70
Liquid, tanks	100 lb.	—	1.95
Soda Sal., bbls.	100 lb.	$1.10	$1.30
Sodium Chloride (Salt)	ton	15.00	15.60
Sodium Fluoride, bbls.	lb.	.07½	.08¾
Sodium Hydrosulphite, bbls.	lb.	.16	.17
Sodium Silicate, 40 deg., drum	100 lb.	.80	1.20
Drums, 52 deg. wks.	100 lb.	1.40	1.80
Tar Acid Oils, 15-25%	gal.	.22	.28½
Triethanolamine	lb.	.20	.22
Trisodium Phosphate, bags, bbls.	lb.	.02	.03
Zinc Oxide, lead free	lb.	.06½	.07¾
Zinc Stearate, bbls.	lb.	.21	.23

Oils — Fats — Greases

Babassu, tanks, futures	lb.	.06¼	Nom.
Castor, No. 1, bbls.	lb.	.09¾	.10½
No. 3, bbls.	lb.	.09¼	.10
Coconut (without excise tax)			
Manila, tanks, N. Y.	lb.	.03¼	—
Tanks, Pacific Coast, futures	lb.	.02⅞	.03
Fatty Acids	lb.	.09¼	.09¾
Copra, bulk, coast	lb.	.0185	Nom.
Corn, tanks, mills	lb.	.06⅝	.06⅞
Fatty Acids	lb.	.08¼	.08¾
Cottonseed, crude, tanks, mill	lb.	.06⅜	.06½
PSY, futures	lb.	.0765	.0788
Fatty Acids	lb.	.06¼	.07¼
Soap stock 60-62%	lb.	.02⅝	.02⅞
Soap stock 65%	lb.	.03⅝	.03⅞
Foots (50% basis)	lb.	.01⅜	.01½
Greases, choice white bbls., f.o.b.			
Chicago	lb.	.05⅝	.06
Yellow	lb.	.04¾	.05
House	lb.	.04¾	.05
Lard Oil.			
Extra, bbls.	lb.	—	.09⅛
Extra, No. 1, bbls.	lb.	—	.09
No. 2, bbls.	lb.	—	.08½
Linseed, raw, bbls.	lb.	.0850	.0880
Tanks, raw	lb.	.0790	.0820
Boiled, 5 bbl. lots	lb.	.0930	.0960
Oleo Oil, No. 1, bbls., N. Y.	lb.	.09	—
No. 2, bbls., N. Y.	lb.	.08¼	—
Olive, denatured, bbls., N. Y.	gal.	.92	.95
Foots, bbls., N. Y.	lb.	.07	.07¼
Palm, shipment	lb.	.0290	—
Palm Kernel, shipment	lb.	.0365	Nom.
Red Oil, distilled, bbls.	lb.	.08⅜	Nom.
Saponified, bbls.	lb.	.08⅜	Nom.
Tanks	lb.	.07½	Nom.
Sesame Oil, dms.	lb.	.10½	Nom.
Soya Bean, domestic tanks, crude	lb.	.05¾	.05⅞
Stearic Acid,			
Double pressed	lb.	.10½	.11½
Triple pressed, bgs.	lb.	.13¼	.14¼
Sterine, oleo, bbls.	lb.	.07¾	.08
Tallow, special, f.o.b. plant	lb.	.05⅛	—
City, ex. loose, f.o.b. plant	lb.	.05¼	—
Tallow oils, acidless, tanks, N. Y.	lb.	.08	—
Bbls, c/l N. Y.	lb.	.08½	—
Teaseed Oil, crude	lb.	.07¼	.07½
Whale, refined	lb.	.0770	.0830

(As of October 27, 1938)

Essential Oils

Almond, Bitter, U.S.P.	lb.	$2.25	$2.30
Bitter, F. F. P. A.	lb.	2.40	2.45
Sweet, cans	lb.	.65	.68
Anise, cans, U.S.P.	lb.	.65	Nom.
Bay tins	lb.	1.30	1.35
Bergamot, coppers	lb.	3.65	3.85
Artificial	lb.	1.25	1.30
Birch Tar, rect. tins	lb.	.60	.65
Crude, tins	lb.	.16	.17
Bois de Rose, Brazilian	lb.	1.55	1.60
Cayenne	lb.	1.50	1.75
Cade, cans	lb.	.42	.45
Cajeput, native, tins	lb.	.42	.45
Calamus, tins	lb.	3.60	4.25
Camphor, Sassy, drums	lb.	.25	.26
White, drums	lb.	.20	.21
Cananga, native, tins	lb.	1.25	1.30
Rectified, tins	lb.	1.80	1.85
Caraway Seed	lb.	1.80	1.85
Cassia, Redistilled, U.S.P.	lb.	.90	Nom.
Cedar Leaf, tins	lb.	.63	.68
Cedar Wood, light, drums	lb.	.28	.30
Citronella, Java, drums	lb.	.37	.39
Citronella, Ceylon, drums	lb.	.35	.35½
Clove, U.S.P., tins	lb.	.98	—
Eucalyptus, Austl., U.S.P., cans	lb.	.35	.37
Fennel, U.S.P., tins	lb.	1.10	1.15
Geranium, African, cans	lb.	3.25	4.50
Bourbon, tins	lb.	2.65	3.00
Turkish	lb.	2.00	2.25
Hemlock, tins	lb.	.60	.65
Lavender, U.S.P., tons	lb.	2.00	4.75
Spike, Spanish, cans	lb.	1.05	1.10
Lemon, Ital., U.S.P.	lb.	3.05	4.00
Cal.	lb.	2.50	—
Lemongrass, native, cans	lb.	.38	.40
Linaloe, Mex., cases	lb.	1.25	1.30
Nutmeg, U.S.P., tins	lb.	1.20	1.25
Orange, Sweet, W. Ind., tins	lb.	1.90	2.00
Italian cop	lb.	2.25	3.25
Distilled	lb.	—	.50
Cal.	lb.	.65	.75
Origanum, cans, tech	lb.	.90	1.60
Palmarosa	lb.	2.00	2.25
Patchouli	lb.	3.75	6.50
Pennyroyal, dom.	lb.	1.40	1.45
Imported	lb.	1.50	1.75
Peppermint, nat., cans	lb.	2.15	2.45
Redis., U.S.P., cans	lb.	2.35	2.65
Petitgrain, S. A., tins	lb.	.82½	.90
Pine Needle, Siberian	lb.	.95	1.00
Rose, Natural	oz.	5.25	22.50
Artificial	oz.	2.00	8.00
Rosemary, Spanish, tins	lb.	.56	.75
drums	lb.	.51	.70
Sandalwood, E. Ind., U.S.P.	lb.	4.75	4.80
Sassafras, U.S.P.	lb.	.90	1.00
Artificial, drums	lb.	.36	.37
Spearmint, U.S.P.	lb.	1.70	1.75
Thyme, red, U.S.P.	lb.	.85	1.25
White, U.S.P.	lb.	.85	1.45
Vetivert, Bourbon	lb.	3.65	16.50
Ylang Ylang, Bourbon	lb.	3.50	6.00

Aromatic Chemicals

Acetophenone, C. P.	lb.	$1.30	$1.45
Amyl Cinnamic Aldehyde	lb.	2.00	2.25
Anethol	lb.	1.00	1.05
Benzaldehyde, tech.	lb.	.60	.70
U. S. P.	lb.	.85	.95
Benzyl, Acetate	lb.	.44	.49
Alcohol	lb.	.63	.68
Citral	lb.	1.10	3.10
Citronellal	lb.	.75	.80
Citronellol	lb.	1.75	1.80
Citronellyl Acetate	lb.	4.50	7.00
Coumarin	lb.	2.75	4.65
Cymene, drums	gal.	.90	1.25
Diphenyl oxide	lb.	.50	.55
Eucalyptol, U.S.P.	lb.	.55	.57
Eugenol, U.S.P.	lb.	1.70	2.15
Geraniol, Domestic	lb.	.67	3.00
Imported	lb.	2.00	3.00
Geranyl Acetate	lb.	1.20	2.50
Heliotropin	lb.	1.80	2.20
Hydroxycitronellal	lb.	2.00	2.50
Indol, C. P.	oz.	2.00	2.13
Ionone	lb.	1.30	4.05
Iso-Eugenol	lb.	3.00	4.25
Linalool	lb.	2.10	6.30
Linalyl Acetate	lb.	1.35	2.25
Menthol	lb.	3.00	3.35
Methyl Acetophenone	lb.	2.50	3.00
Anthranilate	lb.	2.10	2.30
Paracresol	lb.	4.50	6.00
Salicylate, U.S.P.	lb.	.40	.45
Musk Ambrette	lb.	3.25	3.65
Ketone	lb.	3.40	3.80
Xylene	lb.	1.00	1.25
Phenylactaldehyde	lb.	2.25	3.50
Phenylacetic Acid	lb.	1.75	3.00
Phenylethyl Alcohol	lb.	2.70	4.25
Rhodinol	lb.	6.65	13.00
Safrol	lb.	.50	.53
Terpineol, C. P., 1000 lb. drs.	lb.	.23	.24
Cans	lb.	.25	.30
Terpinyl Acetate, 25 lb. cans	lb.	.77	1.00
Thymol, U.S.P.	lb.	1.40	1.45
Vanillin, U.S.P.	lb.	2.10	2.20
Yara Yara	lb.	1.25	1.50

Insecticide Materials

Insect Powder, bbls.	lbs.	.28	.30
Concentrated Extract			
5 to 1	gal.	1.53	1.63
20 to 1	gal.	5.85	5.95
30 to 1	gal.	9.20	9.30
Derris, powder—4%	lb.	.30	.35
Derris, powder—5%	lb.	.36	.42
Cube, powder—4%	lb.	.26	.30
Cube, powder—5%	lb.	.30	.35

Gums

Arabic, Amb. Sts.	lb.	.09½	.09¾
White, powdered	lb.	.23	.24
Karaya, powdered No. 1	lb.	.14½	.23
Tragacanth, Aleppo, No. 1	lb.	2.65	2.70
Flake	lb.	.50	1.00

Waxes

Bees, white	lb.	.37	.39
African, bgs.	lb.	.20½	.21
Refined, yel.	lb.	.32½	.33
Candelilla, bgs.	lb.	.15	.15½
Carnauba, No. 1	lb.	.42½	.44
No. 2, N. C.	lb.	.41½	.42
No. 3, chalky	lb.	.33½	.34½
Ceresin, yellow	lb.	.08½	.11½
Paraffin ref. 125-130	lb.	.039	.040

Production Section

A section of SOAP devoted to the technology of oils, fats, and soaps published prior to Jan. 1, 1932, as a separate magazine under the title, *Oil & Fat Industries.*

New Sulphur Soaps

SULFUR soaps have long been a problem to the soapmaker because of inherent disadvantages in the various forms of sulfur previously available. As the usual form of sulfur is crystalline and completely insoluble in water, it is of no value when applied to the skin and may even cause irritation from the scratching of the sharp-edged crystals. Soapmakers have accordingly made use of precipitated sulfur. Soaps made from sulfur in this form, however, present another drawback. They evolve hydrogen sulfide in use, with its notoriously bad odor of rotten eggs.

A new preparation has recently been offered which, it is claimed, has all of the advantages of sulfur with none of its disadvantages. The product is known as organic sulfur oil and is prepared according to German Patent No. 543,603. It is known that when mixtures of sulfur with sugar are melted together, the melt cooled in water and filtered, (when hydrogen sulfide is given off), the product resulting will contain finely divided sulfur. It has been found that if sulfur is melted with sugar and starch in the presence of an air supply, and the fusion cooled and stirred into water, a product separates which will form a colloidal solution in pure water.

For actual preparation 1 kg. of sulfur is mixed well with 4 kg. of sugar and 1 kg. of powdered starch. This is heated, accompanied by an introduction of air into the mixture. Passage of air through it is necessary in order to prevent the formation of carbon compounds of sulfur. The fused mass is removed from the heat at 160° C., allowed to cool a little, then poured into shallow dishes for further cooling. The cooled mass is broken up into small pieces and transferred to 30 liters of water. The desired material settles out and can be readily separated from the aqueous solution and dried.

The preparation so obtained contains in addition to large amounts of colloidal sulfur, sulfur-containing organic compounds of high molecular weight in the form of water-soluble oils. These oils are reddish brown and almost completely soluble in water and in 96 per cent alcohol. Their aqueous solution reacts acid to phenolphthalein and litmus, but neutral to methyl orange. The oils contain a mixture of several sulfur-containing organic compounds, which may be separated from one another by vacuum distillation. A large part is not volatile and decomposes at high temperatures. The distillates are oily liquids yellow-brown to dark red in color, which may themselves be mixtures. Small amounts of crystallizable compounds can be separated from them.

The preparation evolves no hydrogen sulfide and can be used in all types of soap, solid, paste and liquid. When incorporated in solid soap, toilet soap stock having a maximum content of free alkali of 0.05 per cent, and of salt of 0.35 per cent, should be used. The final milled soap, inclusive of all additions, should have a moisture content of about 9 per cent. The usual superfatting agents may be added in the mixing machine, such as ceresin, lanolin, etc. Other additions of such materials as "Calgon," "Tylose," and resin may be made if desired. The perfume used should take into consideration the medicinal character of the soap and the amount of organic sulfur oil present. Sodium thiosulfate is added as a stabilizer. Since the sulfur oil colors the soap, only a small after-toning with brownish or yellow dyes is necessary. Such additions may be made in 10-15 minutes, after which the soap is thoroughly milled.

The amount of organic sulfur to be used is 1-2 per cent, or as a maximum, 5 per cent. Organic sulfur oil has to a certain extent an effect of lowering alkalinity. This effect can be increased by adding to the soap a small amount of other similar-acting material such as triethanolamine stearate or oleate.

Liquid soaps containing sulfur oil should have a fatty acid content of at least 20 per cent and should be of top quality. The same fatty acids as used in liquid shampoos are suitable. These include mixtures of coconut oil, olive oil, castor oil, etc. The

soap is preferably as near neutral as possible or may even be slightly acidified with castor oil fatty acids, Turkey red oil or similar neutralizing agents. Small amounts of potash, up to 5 per cent, have a favorable effect on cleansing action.

The fat charge is saponified in the usual manner and all solutions added after saponification,—the water being added last. About 2 per cent of sulfur oil is suitable in a liquid soap. This is dissolved in 2-3 times its volume of pure water, the latter being held out during the water addition to the soap. The colloidal sulfur solution is added after the soap has cooled somewhat and is mixed in well. The batch is allowed to stand for several weeks in a cool room and then filtered.

Soaps containing sulfur oil have been used in the skin clinic at the University of Breslau and were reported to be efficacious in treating acne vulgaris. They were also used to advantage in scalp treatment. On normal skins they are considered to have an antiseptic action. These sulfur soaps do not decompose in use, do not attack the perfume present, and have been found to be stable for a year. What value sulfur oil is in soap already medicated will have to be determined by further tests. Trebret. *Deutsche Parfümerie Ztg.* **24,** 327-8 (1938).

Soap From Hydrocarbons

Soaps, or fatty acids, freed from unpleasant odor, are obtained from non-aromatic hydrocarbons oxidized by air or other gas containing oxygen, by treating the saponified oxidation products with steam at a temperature below that at which the unsaponifiables distil off and until the unpleasant odor is removed. In an example, a mixture of crude scale wax with unsaponifiables from a previous oxidation, is oxidized at 115° C. with air in the presence of potassium permanganate, saponified at 230° C. under pressure with a 15 per cent caustic soda solution. The mixture is diluted to a 20 per cent soap solution with water and alcohol, and extracted with benzine to remove unsaponifiables. The soap solution is then forced by a pump through a preheater under pressure and sprayed at 250-300° C. into the tower. The water, solvents and malodorous substances evaporated pass to a condenser, and the soap solution, now at about 150° C., flows over Raschig rings against a current of steam from one pipe, and is withdrawn through another pipe. I. G. Farbenindustrie A.-G. British Patent No. 482,277; through *Chem. Abs.*

Action of Filter Aids

Despite the wide use of filter aids, little attention has been paid to their mode of action. It has been found that the most efficient types of kieselguhr contain particles of a shape adapted to lock together to form a tough bulky cake in which the pores occupy over 70 per cent of the total volume. The action of a filter aid such as kieselguhr is mainly mechanical. Its function is to provide a rigid filter-cake structure of high porosity. When kieselguhr is added to suspensions which are partly in the colloidal state, it has a greater efficiency than expected merely from its action in forming a porous cake. Experiments with colloidal ferric and aluminum hydroxides, which have positive electrical charges, suggest that these become firmly bound to negatively charged kieselguhr particles. A small addition of the metallic hydroxide to kieselguhr actually increases the permeability of the latter. Filter aids are effective only if correctly proportioned in the cake, and they are best applied to highly compressible cakes, since the improvement in rigidity of the cake enables higher filtration pressures to be used. P. C. Carman. *Ind. Eng. Chem.* **30,** 1163-7 (1938).

Bleaching of Palm Oils

Palm oil from the palm *Astrocaryum vulgaris* cannot be bleached by blowing with air. Of the technically important palm oils those from Kongo are considered difficultly bleachable, and those from Kamerun and Zanzibar easily bleachable. The difficultly bleachable palm oils contained more linoleic acid than the easily bleachable oils. An indication of the bleachability of palm oil was obtained by determining both iodine number and thiocyanate number, for these values indicate the amount of linoleic acid present. F. Wittka. *Allgem. Oel- und Fett-Ztg.* **35,** 187-93 (1938); through *Chem. Abs.*

Testing of Wetting Agents

A simple, rapid test of the efficiency of wetting agents is as follows: Discs of Mount Vernon No. 6 canvas one inch in diameter, are made. A sample of 500 cc. of solution of any desired concentration of wetting agent is placed in a 600 cc. beaker. A Gooch funnel having a diameter of 1.5 inches and a barrel 3 inches long is inverted in the solution and the whole is brought to the standard temperature selected. The Gooch funnel is then quickly removed from the solution, a canvas disc placed in the bottom of the funnel, the latter again inverted in the solution, and a stop watch started at the moment of immersion. The time required for the disc to begin to sink is measured and recorded as the "wetting time." The average of 4 such measurements is used for greater accuracy.

Wetting agents were examined in this manner with results as shown. In the formulas, R' is a nonfatty alkyl group, R, R_1 and R_2 are various fatty alkyl groupings, and Ar is an aromatic group. H. Seyferth and O. M. Morgan. *Am. Dyestuff Reporter* **27,** 525-32 (1938).

Agent	*Wetting Time in seconds at 75°C.*	
	0.5 gram per liter	*1.0 gram per liter*
$R'ArSO_3Na$	104	57
R_1OSO_3Na	130	66
R_2OSO_3Na	219	108
$RCON(CH_3)C_2H_4SO_3Na$	94	58
$RCOOC_2H_4SO_3Na$	91	52

Water Softening

Boiler-feed water is softened with trisodium phosphate, the method being known as the Budenheim process. In the first stage the raw water is fed over the plates of a cascade preheater, which is heated with any kind of waste steam. Oxygen and carbon dioxide gases are expelled. In the second stage the heated raw water is mixed with alkaline water returned from the boiler, whereby the hardening constituents of the raw water enter into reaction with the alkaline salts of the boiler water. A very considerable proportion of the hardness is removed and the alkalinity of the boiler water is usefully reduced. In the third and last stage a 10 per cent solution of trisodium phosphate is added. This precipitates all remaining hardening constituents. The phosphate sludge is easily filtered, and a feed water is obtained entirely free from hardness and sludge, so that no scale can be deposited in the feed lines, economizer or boiler. About two ounces of trisodium phosphate containing 20 per cent of P_2O_5, is needed per degree of total hardness and per 1000 gallons of water. *Chemical Age* **38,** 447 (1938).

Silicates for Textile Uses

Sodium silicates having different ratios of Na_2O to SiO_2 are useful in the textile industry. The colloidal silicates have Na_2O:SiO_2 ratios of 1:1.6-1:4, in other words, a high proportion of silica. Sodium metasilicate has a 1:1 ratio; the commercial product crystallizes with 5 molecules of water. Sodium sesquisilicate has still more alkali, the ratio being 1.5:1. Orthosilicate has a ratio of Na_2O to SiO_2 of 2:1, and may be anhydrous or hydrated.

Sodium metasilicate is useful in the kier boiling of cotton. Metasilicate contains less insoluble matter and fewer impurities than ordinary 40° silicate or waterglass. A very good whitening effect is obtained when metasilicate is used in combination with hydrogen peroxide for bleaching purposes. Efforts were successful in soaping off rayon and cotton prints with a mixture of equal parts of sodium metasilicate and soap, adding enough to get a good foam on the soaping off bath. This same operation is used in laundries and any dyes which are not fast during the textile operation will similarly not be fast during laundering. Metasilicate is probably the best of the ordinary soap builders.

The scouring of rayon with metasilicate and soap gave excellent results. For scouring an acetate-rayon mixture, it was found that a silicate intermediate between a ratio of 1:1 and 1:4 was the best, used at a temperature not over 140° F. for a 20-minute period. Metasilicate is not satisfactory for wool scouring as it burns the weathered ends of the wool. But a ratio of $1Na_2O$ to $2SiO_2$, when mixed with soda ash, saves soap and apparently gives a more uniform scouring and a wool which dyes more evenly. Wm. Stericker. *Am. Dyestuff Reporter* **27,** P274-7 (1938).

Rancidity Development

The theory is suggested that rancidity results from a disrupted photosynthesis in vegetable oils, and on the photosensitizing action of haemoglobin or other animal pigment in animal fats. Nascent hydrogen is believed to be liberated from the photosensitizer such as chlorophyll or other pigment. This hydrogen unites with molecular oxygen to form loosely combined hydrogen peroxide. The unstable peroxide unites with the unsaturated bond of triglyceride to form a glyceride peroxide. This in turn splits into an aldehyde and forms the rancid compound. Mayne R. Coe. *Oil & Soap* **15,** 230-6 (1938).

Chlorinated Solvent Stabilizer

A volatile organic chlorinated fat solvent which may decompose in the hot vapor state with the production of a strong acid, is stabilized by adding a compound such as pyridine. This vaporizes concurrently with the solvent and imparts an alkaline reaction to the composition. Rex Products & Manufacturing Co. Canadian Patent No. 376,532.

Soaps as Semicolloids

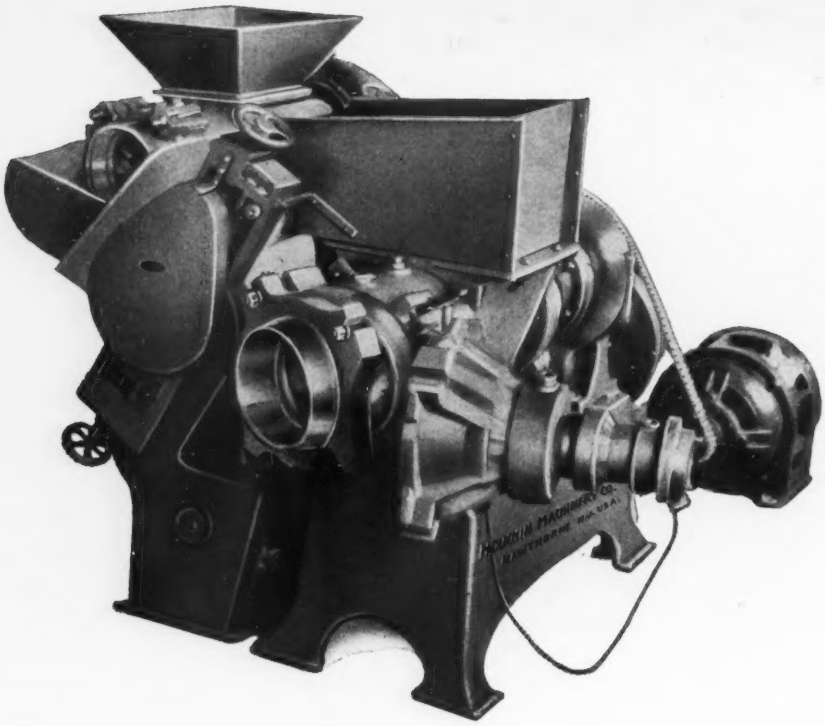
Solutions of the soaps of hydrogenated sunflower oil, sodium oleate, sunflower oil, colophony, acidol and saponin were measured nephelometrically to determine the change in colloidal properties as a function of concentration. In the absence of hydrolysis, i. e., in the region of concentrated solutions, the soap of hydrogenated sunflower oil had the greatest optical colloidality. Next came sodium oleate and sunflower oil soap. The other three soaps possessed weak colloidal properties. Hydrolysis appeared in solutions of sodium oleate at a concentration of about 0.06-0.1 per cent and in solutions of colophony soap at about 10 per cent. Hydrolysis is prevented by the addition of an alkaline electrolyte such as sodium hydroxide or sodium carbonate, to raise the pH to a definite value, differing for the various soaps. Addition of alkaline electrolytes beyond this point causes colloidization of the solution to the point of complete coagulation of the soap. P. A. Rebinder and N. N. Petrova. *Bull. acad. sci. U. R. S. S.*, Classe sci. math. nat., Ser. chim. **1937,** 1085-1101; through Chem. Abs.

Superfatting Agent

A superfatting agent for making toilet soap is prepared by mixing a hydrogenated fatty acid with an unsaponifiable emulgator and stabilizing and preserving agents. Buffer salts may also be present. Thus hydrogenated castor oil fatty acids are mixed with an emulgator such as cetyl alcohol, cholesterol, etc., a preserving or antirancidity agent such as triethanolamine, diphenylguanidine, etc., a reducing agent such as sodium sulfite, and optionally, a disinfectant or perfume. Friedrich Schmocker. Swiss Patent No. 193,-628; through *Chem. Abs.*

Sea Ooze for Soap Use

Sea ooze which has been dried and sifted is added to the reaction mixture in the manufacture of soap, before or during saponification. Richard Weissbach. German Patent No. 662,141; through *Chem. Abs.*



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Products and Processes

Jelly Hand Soap

A hand soap of jelly-like consistency suitable for packaging in tubes is made by mixing a soap such as ammonium oleate or triethanolamine oleate with a solvent fraction from petroleum. One method of preparation is to dissolve 12-15 parts of olein in 80 parts of solvent with warming on a water bath, and to saponify with stirring, with 6-7 parts of triethanolamine. A homogeneous jelly is obtained whose consistency is largely dependent on the proportion of soap to solvent. *Seifensieder-Ztg.* **65,** 632 (1938).

Anthrasol in Soap

A white tar soap having antiseptic properties may be prepared by incorporating anthrasol in the soap. This is a white to yellow oily liquid having a strong odor of tar. The anthrasol is added, together with perfume such as rosemary, lavender oil, etc., to the soap chips in the mixing machine and is well worked in. The following proportions are suitable:

	Kg.
Soap stock	100
Anthrasol	2.5-5
Perfume	1

Ordinary tar soaps are made with the addition of 3-5 per cent of coal tar. *Seifensieder - Ztg.* **65,** 608 (1938).

Paint and Varnish Remover

A paint and varnish remover consists of an aqueous solution of 3 quarts of hot water, 1 lb. of Irish moss, 12 oz. of methyl alcohol, 12 oz. of Fuller's earth, 4 lbs. of caustic soda and 4 lbs. of caustic potash. Joseph F. D. Vinet. Canadian Patent No. 374,988; through *Chem. Abs.*

Powdered Wetting Agents

Synthetic washing, wetting and dispersing agents which are themselves nonpulverizable are obtained as powders by applying them in a finely divided state to fine powders such as those of sodium chloride, sodium sulfate or urea, and mixing well. The substances contain at least 1 lipophilic radical and at least 1 hydrophilic group. The substances or their dispersions or solutions are preferably sprayed in a spray drier onto the inert powder, or are sprayed together with a solution or dispersion of the inert material. I. G. Farbenindustrie A.-G. British Patent No. 482,367; through *Chem. Abs.*

Notes on Palm Oil Soap

The following composition is recommended for palm oil soap:

	Kg.
Bleached palm oil	1000
Refined Tallow	200
Coconut oil	100

Saponification is with 20-25° Be. lye and the pan is always kept diluted. The spatula test should be very definite and the boiled soap should flake out easily. This helps salting out and settling. The soap should be dried slowly. Palm oil soap, if properly made, is cream colored. It is best perfumed with a violet, mayflower, reseda (mignonette), patchouli, musk or lavender odor. A. N. Ghose. *Indian Soap J.* **5,** 29-31 (1938).

Spray Soap Powder

Fatty acids obtained by the splitting of fats with steam under pressure are converted into soap by treating them under pressure and without reduction of temperature with an alkaline reagent and sufficient water to produce a neat soap, which is then sprayed. Victor Mills to the Procter & Gamble Co. British Patent No. 482,535; through *Chem. Abs.*

Soap Paste By Centrifuging

Mixtures of fatty oils and soap, produced by neutralizing free fatty acids in oil with aqueous caustic alkali, are separated after treatment. The mixtures are treated with salt in a proportion sufficient to raise the specific gravity of the aqueous phase to a value between 1.058 and 1.2, and are then treated in a high-speed centrifuge having 3 discharge apertures, to recover soap paste, neutral oil and salt solution. Aktiebolaget Separator. French Patent No. 827,903; through *Chem. Abs.*

Fulling Soap

The following formulas are typical for fulling soap, made according to different price requirements:

	Good	*Medium*	*Cheap*
	Per Cent	*Per Cent*	*Per Cent*
Tallow or grease	47	31	25
Palm oil	11	10	8
Soda ash solution, 36°Be.	6	9	11
Caustic soda lye, 36°Be.	31	26	25
Sodium silicate	..	9	17
Starch	..	..	1
Water	5	15	13

Starch is used to close up the cheap grade, which would otherwise be too open a soap, due to the low proportion of fatty acids. George S. Collingridge. *The Chemical Age* **39,** 257-9 (1938).

Liquid Tar Shampoo

The following formula for a liquid shampoo gives a product that is very mild in its action, but one with very good cleansing power.

	Kg.
Coconut oil fatty acids	15
Castor oil fatty acids	8
Peanut oil fatty acids	2
Caustic potash, 50°Be.	12.5
Potassium chloride	2
Sugar	10
Zewa powder, 25% solution	20
Distilled water	55.5
Anthrasol	2%

The anthrasol is dissolved in twice its volume of alcohol. Kleimu. *Deutsche Parfumerie-Ztg.* **24,** 305-6 (1938).

Acid Soap Solution

In British Patent No. 488,514 of Eugene Schneller, soaps, soapy creams, shampoo preparations, etc., are prepared from concentrated solutions of casein having an acid reaction. The casein is prepared in accordance with British Patent No. 485,805. With this casein it is possible to produce a soap whose solution has a faintly acid reaction corresponding to pH 6, over an appreci-

able period of time, greatly exceeding the normal duration of a washing operation. A soap of this kind preserves a constant composition to the end of its use. *The Perfumery & Essential Oil Record* **29,** 308 (1938).

Neutral Bleached Soap

A neutral, bleached soap is produced by adding to the liquid or solid soap boric acid and a polybasic hydroxy aliphatic acid such as citric or tartaric acid. C. E. Rost and Helmuth Wortmann. British Patent No. 481,481; through *Chem. Abs.*

Soap for War Purposes

A protection for the skin against war chemicals of the dichlorodiethyl sulfide group consists of a metal soap and a solvent, e.g., aluminum palmitate and magnesium oleate and carbon tetrachloride or benzene. Dragerwerk Heinrich und Bernhard Drager. German Patent No. 653,119; through *Chem. Abs.*

Sulfonated Oil in Soaps

Sulfonated oils are useful in liquid soaps and in improved soap shampoos. They increase resistance to lime-soap formation. A suitable formula is the following:

	Parts
Coconut oil	30
Soybean oil	60
Caustic potash solution, 50%	48
Glycerine	50
Distilled water	286
Perfume	1
Sulfonated castor oil	25

The oils are heated to about 107°F. in a pan fitted with an open steam coil and agitator. Caustic potash is added gradually until saponification is complete. Water is run in during the process as required, the balance plus the glycerine being added at the finish. The sulfonated oil and perfume may be added when the soap has cooled. S. P. Jannaway. *The Perfumery & Essential Oil Record* **29,** 292-6 (1938).

Bleaching Agent

A bleaching agent consists of 85-70 per cent of sodium perborate mixed with 15-30 per cent of borax. Eugen Weymuth. British Patent No. 481,399; through *Chem. Abs.*

Modified Alkyl Sulfate

According to British Patent No. 489,097 of Procter & Gamble Co., the lathering and detergent properties of alkyl sulfate detergents are improved by an addition of unsulfated alkyl alcohols. The proportion should not exceed 75 parts of fatty alcohol to 100 parts of the water-soluble salt. The C_{10} and C_{12} alcohols, which are readily obtainable from coconut oil, are the most efficient for the purpose. *Perfumery & Essential Oil Record* **29,** 368-74 (1938).

Leather Cleaner

A cleaner for leather, wood, linoleum, rubber, etc., consists of bleached shellac, bleached rosin, bleached Burgundy pitch, alcohol, a perfume and borax. Elsbeth Woolbrandt. German Patent No. 660,892; through *Chem. Abs.*

Pine Sawdust Cleaner

Fatty acids containing up to 10 per cent of terpineol are saponified in the usual manner and then mixed with a product obtained by boiling sawdust from coniferous trees with water, to give a cleaning composition. Armand P. E. E. Vorburger and Jean J. Duthoron. French Patent No. 827,076; through *Chem. Abs.*

Nonhydrolyzing Soap

The pH value of a 0.5 per cent aqueous solution of toilet soap is about 9.4 at 20° C. The pH value of a toilet soap which does not hydrolyze is about 7.0 under the same conditions. The acid reaction of the surface of the skin gives it a pH value of 5.8. The reaction of the skin immediately following washing with a nonhydrolyzing soap and removal of the soap, has been found by experiment to be about pH 7, while the skin when washed with a toilet soap which hydrolyzed in solution gave a much higher pH value, even ater all soap had been removed. A soap which does not give hydrolysis alkalinity is recommended for use by people who have to wash their hands at very frequent intervals because of the nature of their work, by sick people, and by those who are hypersensitive to alkali on the skin. N. Welwart. *Ole, Fette, Wachse, Seife, Kosmetik* **1938,** 6.

Textile Wetting Agents

Low molecular monohydric aliphatic alcohols are esterified by unsaturated fatty acids or hydroxy acids to give products useful as wetting agents in the textile industry. E.g., castor oil fatty acids are mixed with butyl alcohol, and concentrated sulfuric acid. The mono- and diesters of ricinoleic sulfuric acid are preferred. Böhme Fettchemie-G.m.b.H. German Patent No. 659,528; through *Chem. Abs.*

Rennet Milk as Detergent

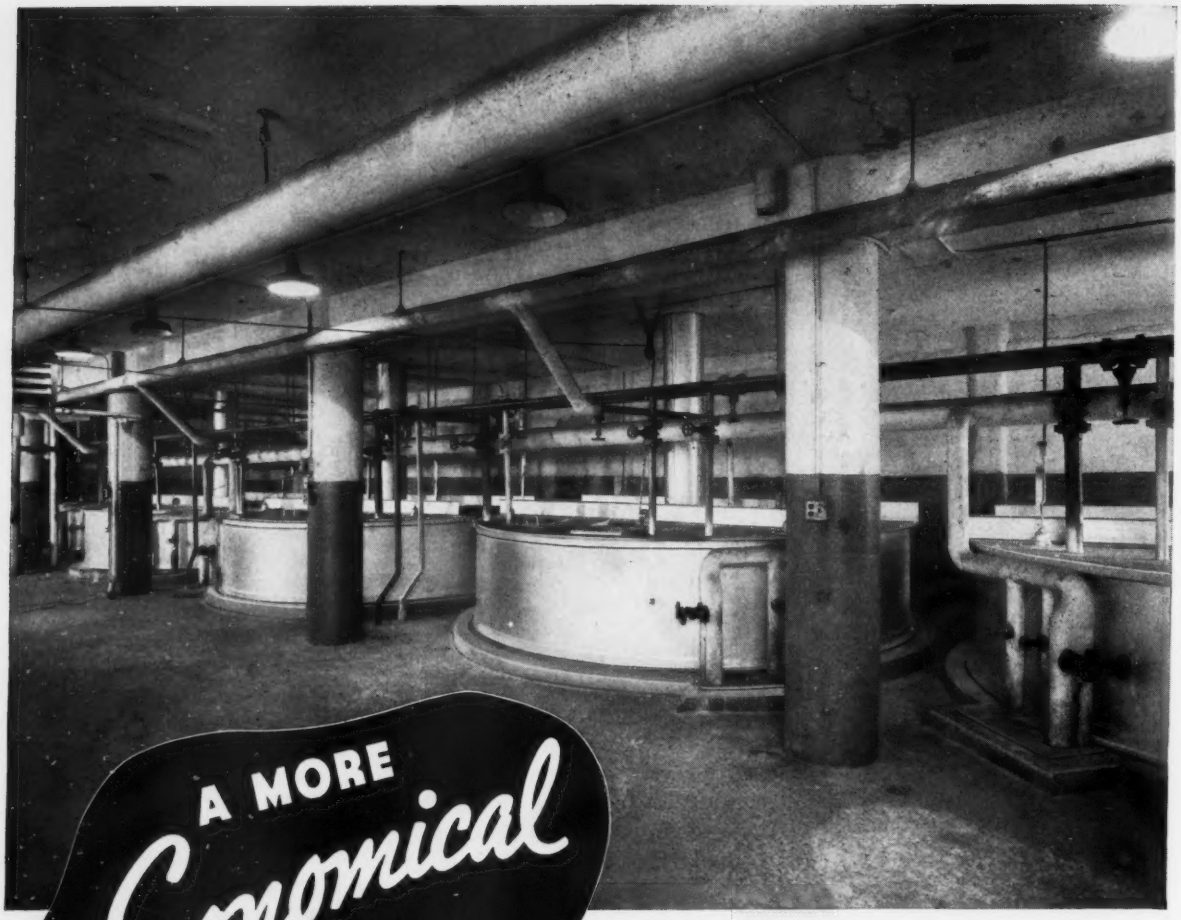
Milk freed from albumin and evaporated is treated with an alkaline salt and starch. Thus, rennet milk from cheese making is heated to 80° C. and stirred to coagulate the albumin. The albumin is allowed to settle and the clear milk is decanted off and evaporated. The product is mixed with calcined soda and potato starch for use as a detergent. Wilhelm Löhr. German Patent No. 659,567; through *Chem. Abs.*

Alkene Detergents

Alkenes or cyclic compounds with alkene side chains are polymerized in the presence of catalysts such as Florida earth, aluminum chloride or boron fluoride. The polymerized product is sulfonated by reaction with sulfuric acid. The sulfonate is useful as a detergent. N. V. de Bataafsche Petroleum Maatschappij. Dutch Patent No. 42,557; through *Chem. Abs.*

Extracting Animal Fat

An apparatus for treating animal carcasses, fish offal, etc., to obtain the fat present, consists of a horizontal cylindrical digestion vessel and a feeding device at each end of the vessel, each feeding device being provided at the top and bottom with a steam-tight closure and acting as a preheater. August Sommermeyer. British Patent No. 482,891; through *Chem. Abs.*



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No. 2,128,917, Tooth Paste, Patented September 6, 1938 by Ernest C. Crocker, Belmont, Mass., assignor to Arthur D. Little Inc., Cambridge, Mass. A tooth paste comprising powdered sodium bicarbonate and a substantially saturated sucrose syrup in nearly equal parts, a relatively small content of dissolved soap sufficient to create a gel structure substantially preventing oozing of the paste, and a minor content of an alkali salt of a sulfonated higher alcohol.

No. 2,129,025, Insecticide, Patented September 6, 1938 by Alfred Rieche, Wolfen, Kreis Bitterfeld, and Hans Maier-Bode and Wolfgang Eckardt, Dessau in Anhalt, Germany, assignors to Winthrop Chemical Co., New York. An insecticide containing a halogenated ketal.

No. 2,129,377, Polishing Compound, Patented September 6, 1938 by Hyman Libovitz, Newark, and Walter Mueller, Union, N. J., and William Pfeiffer, Jackson Heights, N. Y., assignors to Allegro Co., N. J. An abrasive composition comprising 1250 weight units of silicious earth, 750 weight units of aluminum oxide, 250 weight units of tripoli powder, 250 weight units of petroleum jelly, 125 weight units of ceresine wax, 125 weight units of stearic acid, 50 weight units of Montan wax, a quantity of tar, and 25-250 weight units of cotton waste.

No. 2,130,361, Art of Deterging, Patented September 20, 1938 by Fred Weaver Muncie, New Brunswick, N. J., assignor to Colgate-Palmolive-Peet Co., Jersey City, N. J. A process of forming a product suitable for use as a domestic detergent that comprises reacting approximately one molecular proportion of fatty oil, two molecular proportion of substantially anhydrous glycerine and an excess over three molecular proportions of fuming sulphuric acid by mixing the sulphuric acid and glycerine and reacting the mixture with the fatty oil, the quantity and strength of the sulphuric acid being such that the concentration of the excess sulphuric acid, after the reaction has been completed, will be in the general neighborhood of 99.3 per cent.

No. 2,130,362, Detergent and Method of Preparation, Patented September 20, 1938 by Fred Weaver Muncie, New Brunswick, N. J., assignor to Colgate - Palmolive - Peet Company, Jersey City, N. J. In a process of forming a composition of matter including a substantial proportion of a salt of a sulphuric acid ester of a monoglyceride, the steps that comprise reacting a monoglyceride with fuming sulphuric acid of such strength and quantity as will react therewith and leave an excess of sulphuric acid in the mixture, which excess will, after the completion of the reaction, have a concentration of not less than about 99.3 per cent sulphuric acid, and thereafter neutralizing the mixture.

No. 2,130,435, Mothproofing Detergent Composition, Patented September 20, 1938 by Hermann Stotter, Leverkusen—I. G. Werk, and Theodor Hermann, Frankfort - on - the - Main-Hochst, Germany, assignors to Winthrop Chemical Co., New York. A moth-proofing detergent composition consisting essentially of an acid soapy washing agent in preponderating proportion and of a water-soluble mothproofing agent having an affinity for wool selected from the group consisting of acid hydrofluoric acid salts, hydrosilico-fluoric acid, hydrofluorotitanic acid, boro-fluoro-acetic acid. selenious acid, selenic acid, and salts of the acids, the composition being at the most only slightly colored in the dry state, being soluble in water, and being adapted for simultaneously cleaning and rendering moth-proof wool, feathers, hair and like materials.

No. 2,130,540, Anhydrous Lubricant, Patented September 20, 1938 by Marcellus T. Flaxman, Wilmington, Calif., assignor to Union Oil Co. of California, Los Angeles. An anhydrous lubricant comprising roughly 50 per cent of petroleum lubricating fractions at least about as heavy as light lubricating oils, a quantity of unsaponified liquid fat approximating one-fourth of the composition, between about 10 per cent and 25 per cent of a soap of a liquid fat producing a non-emulsifying grease, and a small proportion in the order of a few per cent of a normally solid fatty acid material to insure retention of the soap.

Felton Enjoins Albek

In the California Superior Courts at Los Angeles, Hon. Goodwin J. Knight has enjoined Albert Albek, Albert Albek, Inc., and other defendants from dealing in the line of products of Felton Chemical Co., Inc., of Brooklyn, New York, for a period of approximately two years. Felton Chemical Co., Inc., filed two suits against Albert Albek, Albert Albek, Inc., and others, alleging that they were unlawfully withholding property and business records of the Felton Chemical Co. and has violated the contract existing between Felton Chemical Co. and Albert Albek, under which the latter had acted as agent.

The court adjudged that Albert Albek, Albert Albek, Inc., and the other defendants were unlawfully holding property and records of Felton Chemical Co., and ordered their return. The court then enjoined the defendants from soliciting, selling to, or in any other manner dealing with the specified customers of Felton Chemical Co., Inc., in California, in the line of products heretofore sold by Albert Albek and Albert Albek, Inc., for Felton Chemical Co., as agent, according to the text of the injunction. The court, also assessed damages and costs against the defendants of approximately $8,600.

The court also issued a permanent injunction against the defendants from using, or divulging, any knowledge or information gained by virtue of the confidential relationship which had heretofore existed; also from imitating the literature, advertising or packaging of Felton Chemical Co., Inc., or from representing in the trade, the existence of any business relationship between the parties.

Cheap After-shave Lotion

An inexpensive after-shaving lotion can be prepared from acetic acid, which neutralies alkalinity and possesses astringent properties. If it is desired to keep the price down, it can be prepared without alcohol. A suitable concentration is one per cent of acetic acid. A 20 per cent solution can be made and later diluted, by mixing 200 parts of glacial acetic acid with 800 parts of water. Perfuming of this is difficult but can be done by the addition of 12 parts of vanillin, 5 of coumarin, 10 of ethyl acetate and 5 of citronella oil dissolved in twice the volume of ethyl or isopropyl alcohol. *Seifensieder-Ztg.* **65,** 281 (1938).

Early Soap Literature

The British Museum contains a 17th century manuscript which gives details of the preparation of several kinds of soap. Mention is made of the use of salt to help the soap separate from the lees. No other author has yet been found to mention the salting-out process as early as this. F. W. Gibbs. *Chemistry & Industry* **57,** 877 (1938).

Micro Soap Number

The microdetermination of saponification number can be made with the use of a 25-cc. flask with a fused-on condenser 10 cm. high. If solid, 5-32 mg. of the compound to be analyzed is added from a long-stemmed weighing bottle. Liquids are sealed in glass bulbs which are crushed in the flask. About 3 cc. of alcoholic potassium hydroxide is added from a special weighing pipet. Usually approximately 0.1 normal is used, but for some compositions 0.3 or 0.5 normal is necessary.

One hour refluxing is sufficient for the saponification of most esters, but some compounds have been found to require as long as 50 hours. Since the hydrolyzates are usually yellow or brown, *alpha*-naphtholphthalein is preferred as an indicator because of its contrasting color. It changes from bright red to deep blue in the pH range 7.3-8.7. The titration is made with 0.1 normal sulfuric acid from a microburet. To total possible error should be less than ± 5 per cent. Errors in weighing are less than 1 per cent. Errors due to corrosion of the flask and adsorption of alkali on the flask are small and tend to compensate each other. M. Furter. *Helv. Chim. Acta* **21,** 601-13 (1938); through Chem. Abs.

Alkaline Metal Cleaners

The pH of metal cleaners should be regulated to suit the particular metal to be cleaned. Zinc and aluminum are attacked if the pH of the cleaner is above 10; tin above a pH of 11; brass above 12.5; and high-silicon iron at a pH above 13. Soaps are often added to cleaners or are formed by the action of alkali on the grease removed from metals. They may cause difficulties in cleaning by forming insoluble calcium or magnesium soaps on the work when it is rinsed in hard water. When the work is acid-dipped a greasy film of fatty acids forms on its surface. This difficulty is avoided by the use of sulfonated higher alcohols which do not form insoluble calcium and magnesium soaps.

The efficiency of cleaners is determined roughly by a drop method. Two cc. of the cleaner are run from a buret in a minute and the drops counted. Without wetting agents in the cleaner, the number of drops is 55-60, and with wetting agents 85-90. The wetting agents are advantageous in ball burnishing because they eliminate the dull films which form on the work when ordinary soaps are used in the presence of hard water. However, they do not have as good a lubricating action as has ordinary soap. Frank K. Savage. *Monthly Rev. Am. Electroplaters' Soc.* **25,** 445-50 (1938); through *Chem. Abs.*

Washing Agent

Carbazole is treated with lauric acid chloride in the presence of a tertiary base, and the product sulfonated to give a readily soluble substance with good washing properties. Soc. pour l'ind. chim. a Bale. Swiss Patent No. 194,343; through *Chem. Abs.*

Copra Quality

Much of the copra on the market today is of poor and unsatisfactory quality. The reason for this comes from 2 causes, careless handling and storage conditions of the fresh copra on the plantations, and the fact that copra is divided into only 2 grades. This means occasions arise when a quality of copra that is uniformly good may sell for the same price as an inferior quality. The purchasing of copra should be put on a different basis of price quotation so as to encourage careful treatment and proper storage of copra by the planters. A change of market custom so that copra could be purchased on the basis of its oil value alone would lead to better conditions and be of advantage to copra purchases throughout the world. F. Wittka. *Fette und Seifen* **45,** 319-20 (1938).

Semi-solid Shaving Cream

Shaving cream to be packed in glass jars needs to be somewhat more firm than that intended for packing in tubes. A small amount of caustic soda is included in the formula, which is as follows: 30 parts of white, amorphous stearin, titer 53-54° C., 8 parts of Cochin coconut oil or its fatty acids, 11.5 parts of caustic potash, 50° Be., 3.5 parts of caustic soda, 38° Be., 4 parts of glycerine and about 45 parts of water. The product is further improved by the inclusion of 2-3 parts of triethanolamine oleate or stearate. *Seifensieder-Ztg.* **65,** 572 (1938).

Introduce New Igepal

A product called "Igepal L" of I. G. Farbenindustrie, combines the usual properties of the "Igepals" with the effect of an organic solvent. The material is easily soluble in water, resistant to hard water, metallic salts, acids and alkalies as met in textile processing, and is neutral in reaction. As a detergent it surpasses soap, removing grease stains and similar strong impurities. *Textile Colorist* **60,** 562 (1938).

Consistency Lines of Fats

A consistency line for fats is defined as any curve which expresses the relationship between the percentage of solid components and the temperature. Calorimetric methods of analyses have been used in which 2 Cal. of heat per minute were added to 3 grams of fat and the temperature noted each minute. The data obtained was used to plot the consistency line in which Cal. per gram was plotted against temperature. The curves showed that coconut oil is almost all solid fat at 5° C. but at 26° C. is wholly liquid. Palm oil, though partially liquid at 5° C. must be heated to over 40° C. to become wholly liquid. J. Straub and R.N. M.A. Malotaux, *Rec. trav. chim.* **57,** 789-94 (1938); through *Chem. Abs.*

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Laundry Specifications

(*From Page* 27)

TYPE B

	Minimum Per Cent	*Maximum Per Cent*
Ammonium bifluoride	50.0	52.0
Ammonium silicofluoride	48.0	50.0

The material shall be white free-flowing crystals, free from dirt and other impurities. The normal lumping encountered when this material is exposed to moisture or moisture-laden air will be given consideration at the time of inspection.

The material shall be an intimate mixture showing no appreciable separation of the constituents.

A starch specification, covering a thin-boiling fifty-fifty mixture of wheat and corn starches, and a thick-boiling type containing one part of wheat starch to two parts of corn starch, rounds out this group of laundry supply specifications.

Several of these specifications were developed by another buying agency prior to the assembling of this group, however most of them it is believed are original. All of them have stood the test of time in consummating at least eight sizeable transactions. Naturally some difficulties have been encountered, as for instance the need for protecting the buyer against the use of inferior soaps in the cold water washing compound by means of a suitable performance test. The failure of vendors to ascertain and compare the tinctorial strength of their laundry bluing with the established standard resulted in some rejections of material. However, most of these difficulties were eliminated as vendors became familiar with the specifications.

It might be timely to offer a word of caution relative to the possible adoption of some of these specifications by other buyers. First, they should not be used without adequate inspection and testing of shipments, and secondly, the user must be alert to the need for revision from time to time as the occasion arises.

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Newer Detergents

(*From Page* 31)

ing agents so as to hydrogenate the existing double bonds or completely or partly reduce to —CH_2OH groups the existing carboxylic groups, or to obtain both these results at once. The products obtained may be acylated, for example, converted to acetates, distilled and saponified to separate them into their constituents. They may be sulfonated to obtain substances having capillary activity.

German Patent No. 656,215, February 1, 1938, to the Zschimmer & Schwarz Chemische Fabrik Dolan, states that waxes may be recovered from mixtures with fats by treating the mixture with a saponifying agent under such conditions that only the fats are saponified. This is preferably effected with the aid of a fat-splitting catalyst in the known manner. The product is washed, the liberated fatty acids are converted into soaps, and the waxes are then recovered from the mixture by filtration, centrifuging, compression or decantation. The process may be applied to marine-animal oils containing fats and waxes.

According to United States Patent No. 2,050,671, August 11, 1936, to D. H. Sheffield and assigned to the Hercules Powder Company, terpene alcohols can be separated from the pine oil from the long-leaf yellow pine by heating to 100 to 150° (212 to 302° F.) with boric acid to convert the terpene alcohols into borates. The remaining constituents are separated by distillation, the borates hydrolyzed, and the terpene alcohols separated by fractional crystallization. Alternatively, the esterification may be conducted under such conditions, for example, at 160 to 170° C. (320 to 338° F.), that borates of the secondary alcohols only are produced, the tertiary alcohols being converted into terpinene and dipentene.

Separation of Alcohols

ALL of the higher fatty alcohols occurring in natural products are mixtures. Nature seldom gives as pure compounds. In the same way, the higher fatty alcohols prepared by the hydrogenation or other reduction of the natural fatty acids, or their esters, or other compounds, are practically always mixtures, usually of more or less closely related alcohols. The separation or purification of these natural or synthetic mixtures has been the subject of several patents.

E. E. Reid, in United States Patent No. 2,004,131, July 11, 1935, assigned to E. I. du Pont de Nemours and Company, states that it is possible to separate the saturated from the unsaturated alcohols, such as oleyl and stearyl alcohols, by means of a selective solvent, such as liquid sulfur dioxide, at a temperature below about 10° C. (50° F.).

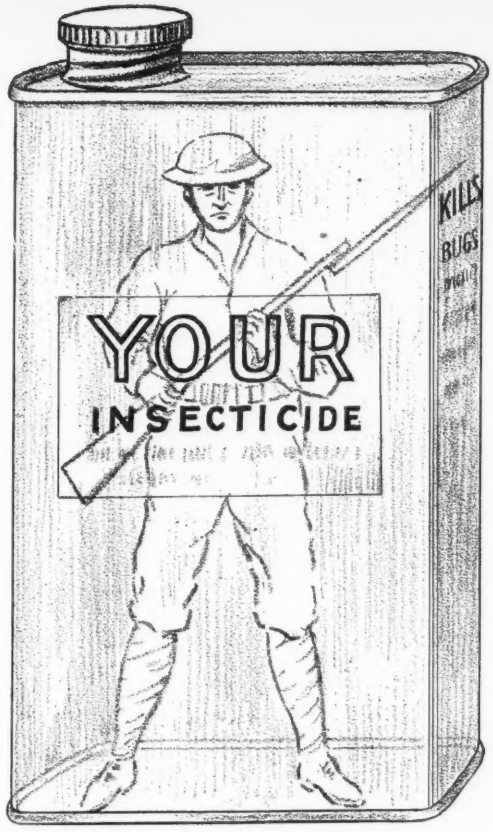
According to W. Grote, E. Hundsdorfer and J. Moos, in United States Patent No. 2,113,960, April 12, 1938, assigned to the Edeleanu G.m.b.H., the saturated and unsaturated components of the higher aliphatic compounds, such as may be recovered from fats and waxes, can be separated by dissolving the mixture in carbon disulfide and lowering the temperature to, say, about —15° C. (5° F.), to precipitate the saturated component, which is removed.

(*The third paper of this series on the alcohols will appear in the next issue of Soap. It will cover the synthesis of the aliphatic alcohols.—The Editor.*)

Sanitary Products SECTION

A Section of "SOAP" dealing with

Insecticides • Disinfectants • Moth Products
Floor Products • Polishes • Chemical Specialties



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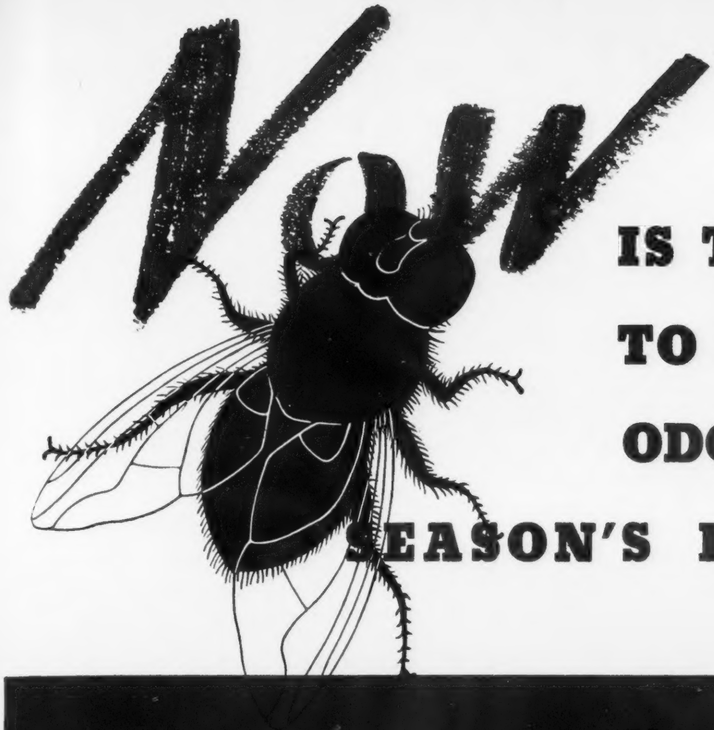

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Sanitary Products

A Section of SOAP

Official Publication, Nat'l. Assn. of Insecticide & Disinfectant Manufacturers

COMPLETING its first quarter-century, the National Association of Insecticide & Disinfectant Manufacturers will meet at the Hotel Biltmore, New York, December 5 and 6. With the wages and hours bill just having gone into effect, with regulations currently being drafted for enforcement of the new Foods and Drugs Act, with Congress about to reconvene, and with forty-four state legislatures scheduled soon to renew their legal barrage, it is certainly an appropriate occasion for every member of the industry to take a little time away from his own private problems and join with fellow members of his industry to see that their common interests receive adequate protection.

THE Fair Labor Standards Law became effective on October 24. Its wages and hours provisions call for a minimum wage of twenty-five cents per hour and a forty-four hour week, with time-and-a-half for overtime. Outside salesmen are exempted under the law. All other employes come under the act whether plant or office help. Failure of employers who ship their goods in interstate commerce to comply carries the threat of heavy penalties. This is the situation in a nutshell.

Now, what is the procedure for employers? Quite obviously, it is not only to comply with the law immediately, but to keep complete time and pay records from October 24 where they may not have been kept before. Comply with the law in the case of *all* employes,—at least until there are more definitely established regulations, or other clarifying developments. Changes may come later via court decisions, but at present, strict compliance is the only course of good sense.

TOO ready acceptance of stipulations offered by the Federal Trade Commission in cases where business firms tangle with the Commission in matters of label claims, advertising claims, and the like, is bad business according to a well-known technical consultant. He states that the Commission purposely puts things into its stipulations which are added primarily for the purpose of being sacrificed later in the form of concessions. Also, he points out, the Commission anticipates a fight from manufacturers and does not expect them to accept blindly every stipulation exactly as written. On some occasions, he states, the Commission is wrong in its facts or interpretation of stated facts, and refers specifically to a hypochlorite case where the Commission stated that a 5 per cent hypochlorite solution is not an antiseptic when diluted ten times.

In warning manufacturers against being too hasty in accepting stipulations in full, he points out that the Commission is altogether fair and quite informal in ironing out disputed technical points,— that it, provided the manufacturer does not become too formal himself, and descend on Washington with an array of legal talent. These are points of interest to any manufacturer who may find himself face to face with an F.T.C. stipulation—and under present conditions, is this not likely to include just about any and all manufacturers?

Copper Naphthenate

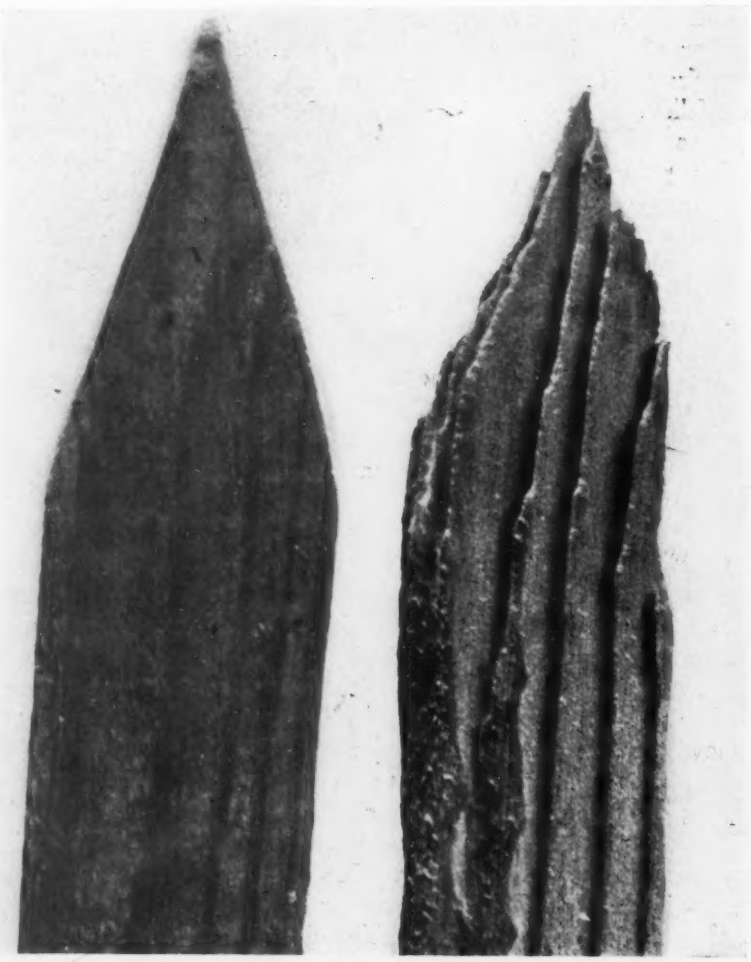
Opens new uses for copper salts in insecticides, fungicides, algicides . . . and as a preservative

By Paul I. Smith
London, England

FOR many years, the insecticidal, fungicidal, and preservative character of copper salts has been known. Their use as algicides and general fungicides has been widespread. Even the orientals as far back as 800 B.C. believed in the purifying effect of copper, and recommended keeping water in copper vessels. Soluble copper salts, copper sulfate being the best known of these, have been much used and find fairly extensive application today as an algicide in waterworks operation. Minute quantities of copper sulfate, far too small to have any effect on humans or animals, will completely destroy most types of algae. Unfortunately, the applications of the sulfate are limited owing to the great solubility of the salt. For instance, it is not suitable for treating wood, canvas, jute, netting, and other materials where water-resistance is essential.

To overcome the obvious disadvantages of copper sulfate, a search was made about forty years ago for a copper salt completely insoluble in water and yet easy to dissolve in some cheap solvent, such as kerosene or white spirit. Thirty-five years ago a material known as "kupreol" was placed on the market as a safe fungicide and insecticide, as well as preservative. This preparation consisted almost entirely of the copper salt of naphthenic acid dissolved in paraffin. Practical experiments with copper naphthenate showed quite conclusively that it had an extremely toxic action on many different bacteria, low forms of plant life and insects responsible for the decay and destruction of wood, jute bags, canvas tents and fishing nets, as well as the fouling of ships' bottoms. Unfortunately the relatively high price of the naphthenate, and the variation of quality in different batches, made the material unattractive to a number of promising customers. Today, however, these troubles have been overcome and high grade copper naphthenate is

Wood treated with copper naphthenate (left) and untreated wood (right) were subjected to continuous attacks of termites. Here are the results.



available with a guaranteed uniform copper content and at a lower market price.

Naphthenic acids consist of acids of the general formula $C_n H_{2n-2}O_2$ usually in admixture with traces of paraffin carboxylic acids. Their formation in petroleum has never yet been properly cleared up, but the two main theories accounting for their origin were put forward some years ago. C. Engler "Das Erdoel," Vol. 1. 1911, 452, says that they could be formed by cracking and cyclization of unsaturated fatty acids, which are considered as one of the original substances from which petroleum was formed. According to Kraemer and Weger, *Chem-Ztg.*, 31, 675-77, (1907), they owe their origin to the oxidation of naphthenes and polynaphthenes with air. A. D. Petrov and I. Z. Ivanov, Amer. Chem. Soc., 239-42, 1932, have carried out a large number of experiments which seem to prove that the true explanation is a kind of compromise of the two theories.

The preparation of naphthenic acid from petroleum is comparatively simple and in principle consists of treating the kerosene and gas oil fraction with a dilute aqueous solution of sodium carbonate until neutralization occurs. The sodium naphthenate formed is separated out and treated with sulfuric acid which liberates the free naphthenic acid. This is separated out, distilled and barrelled. According to one patent, Standard Oil Co. (U. S. 1,681,657) the oil is stirred with 10-20 per cent sodium carbonate solution until complete neutralization occurs. Then 50 per cent alcohol is added (about 10 to 20 per cent on the weight of the oil) and the alcoholic extract withdrawn and freed from alcohol by distillation. The residue is acidified and distilled in steam.

There are two main commercial grades of naphthenic acid. The first is a pale amber to brown quality which has an acid value of 250 to 260; unsaponifiable matter 1-3 per cent. The lower grade, which is a dark brown in color with a more pungent smell, has an acid value of 178-180 and unsaponifiable matter reaching 10 per cent.

It may be said that the higher the acid value of the acid, the greater the proportion of copper it is possible to combine with the naphthenic acid radical. This is the reason why it is so vitally important to use correctly blended acid which has a uniform acid value. As naphthenic acids vary quite considerably in their chemical constitution according to their origin, it appears advisable to keep to one source of supply and not to make unnecessary changes purely on the basis of small price fluctuations.

To make 112 lbs. copper naphthenate, 98.5 lbs of naphthenic acid is run into a large copper or wooden steam heated pan and heated up. Then 18 lbs. of caustic soda dissolved in water is added very slowly until the solution is neutral when tested with phenolphthalein. At this stage 56 lbs. of copper sulfate are dissolved in water and added to the hot solution of the sodium salt. A gummy substance, copper naphthenate, is thrown out of solution and washed three times with clean water. The naphthenate is then removed from the pan, crushed and dried on hot plates. Alternatively it can be heated to 130° C. to dry, but care must be taken to prevent decomposition.

Properties of Copper Naphthenate

IT IS a brilliant green, opaque substance which gives a clear solution in the cold with common solvents such as naphtha, white spirit, toluol, turpentine, etc., and when dissolved in white spirit, it gives a characteristic greenish blue color. The material reaches the market in the form of very thick paste containing 11 per cent copper; a thick fluid, 8 per cent copper; also a thin solution of the naphthenate in white spirit. It is possible to produce it in the form of a hard resin-like powder with a copper content of 13 per cent, which is the maximum metal content. Copper naphthenate is stable up to 140 deg. C. and is normally quite neutral. It decomposes in the presence of strong acid or alkali.

A 20 per cent solution of the naphthenate in white spirit is recommended for the treatment and prevention of dry rot in wood caused by the fungus "*Merulius lacrymans.*" This is characterized by a soft whitish or greyish growth (which shrivels on exposure to dry air), often splashed by vivid yellow and sometimes purple, especially where light is present. Fruit bodies, thick soft pancake-like growths varying greatly in size, are formed on the more exposed portions, which change in odor from fresh to foul as decomposition commences. The ripe fruit bodies are striated with irregular charactistic ridges.

The eradication of dry rot once established in a building is expensive and difficult. Since dry rot can readily be transmitted by spores from the fruit body or hyphae or by contact with infected wood, it is very important that all timber used in replacement should be treated with a reliable preservative. Extensive practical tests with copper naphthenate solutions afford striking evidence that it will eradicate "*Merulius lacrymans*" and even "*Coniophora cerebella*" which prefers even damper situations for profuse growth.

"*Polyporus vaporarius*" and the related "*Poria incrassata*" which attack greenhouses, coal mine timbers and occasionally house property are also eradicated by prompt treatment with the naphthenate. *Lenzites*, common in the United States, where it infects roof timbers, and is rightly regarded as one of the most dangerous rots of stored timber is very susceptible to copper naphthenate. Another fairly well-known fungus growth is "*Paxillus panuoides*," which gives wood a characteristic red-brown (red-rust) coloration. It produces slender yellow to brown strings and often a hairy yellow or purple mycelium. This rot is prevented by treatment of suspected timber with copper naphthenate.

Treatment of wood with the naphthenate in the form of a 20-30 per cent solution in naphtha or other suitable solvent, overcomes disadvantages associated with creosote, and water preservatives like zinc chloride,

sodium fluoride, Woolman salts, dinitrophenol, etc.

1. The treatment of wood with copper naphthenate is permanent; the naphthenate once impregnated will never be leached out by rain or other aqueous agency.

2. The copper salt deposited is a solid which is neither oily nor greasy.

3. The solution will not spoil the clothes nor harm the skin.

4. It does not increase the fire risk.

5. It can be painted over and acts somewhat as a priming coat and thus saves a coat of paint.

6. Copper naphthenate has no irritating effect on the eyes or skin.

7. One gallon is sufficient for about 200 sq. ft.

8. Copper naphthenate will remove all danger of rot.

White Ants or Termites

THE extent of the damage done by these pests in the tropics is as notorious as the rapid rate at which they work. The digestive tract of the white ant contains a symbiotic parasite which is capable of converting the cellulose of wood into food for the ant. Copper naphthenate is a virulent poison to this ambrosia. White ants will rapidly eat out the entire interior portion of wooden articles or structures, leaving only a hollow shell. The treatment is to immerse all timber in a solution made at the rate of 2½ lbs. of the naphthenate in 1 gallon of naphtha. If the timber is cut or bored after treatment the fresh surfaces must be painted over with the same solution. Existing timbers may be treated by brushing or spraying, special attention being paid to the end of the grain, since here it is that attack often begins.

Naphthenate In Wax Polishes

At least one well-known English manufacturer, it is reported, is now incorporating a small percentage of copper naphthenate in a wax preparation made specially for treating concrete and composition floors. The addition of the naphthenate, 5 per cent, is purely as a preservative and fungicide, but there is good reason to suppose that it helps to prevent dusting of the floor surface, and the pleasant green color helps materially in providing a desirable finish for the concrete surface.

Copper naphthenate can also be added to wax polishes for wooden floors, especially in schools and public institutions. The additive dissolves easily in turpentine, also in natural and synthetic waxes, and no difficulty is experienced in the manufacture. If the green tinge given to the wax by 5 per cent copper naphthenate is objectionable it can be successfully masked by the addition of suitable dyes. The copper naphthenate is useful mainly for its preservative and fungicidial properties. It acts as a preventive or retardant for many of the insects that attack timber, such as the Death Watch Beetle, Powder Post Beetle, Furniture Beetle, Pinhole Borers, etc.

For Jute and Paper

Experiments carried out recently by M. D. Curwen, founder of Maurice Curwen Ltd., London, and one of the pioneers of research on the naphthenates, indicate that copper naphthenate is one of the most successful chemicals for the preservation of jute bags. A number of practical tests are being carried out in India under the auspices of one of the best known jute mills to determine if treatment of the jute with the copper salt will increase the longevity of jute bags and according to all reports these are proving remarkably successful. Obviously in a case like this the prime factor is the cost of the treatment, and the copper naphthenate process can be carried out very economically. The importance of this move is not difficult to assess, especially as in the case of War, millions of jute bags would be needed as sand-bags. Paper can also be treated with copper naphthenate to prevent it from forming a base for the growth of fungi.

Anti-Fouling

Copper naphthenate is recognized to be the most efficient of all compounds for anti-fouling compositions for ships' bottoms as when hydrolysis occurs the naphthenic acid has active toxic properties and reinforces the copper hydrate. It has recently been demonstrated that green has a phototropic action and that low sea organisms prefer to attach themselves to any color rather than green. Copper naphthenate is far more toxic to fungi flourishing on the ships' bottom than the usual arsenical and mercurial compositions now commonly specified. It might also be mentioned that copper naphthenate is now being fairly widely used for the preservation of fishing nets. A solution made up of light tar oil containing 30 per cent copper naphthenate is an effective preparation for the purpose.

In Special Soaps

EXPERIMENTS recently carried out in England appear to indicate that copper naphthenate is effective against parasites responsible for diseases in animals, and it is proposed that special soaps containing small percentages, 5-10 per cent, would be valuable for veterinary purposes. If this work can be carried a step further and the claims fully substantiated, there is good reason to hope that copper naphthenate might be of real service, especially as emulsions of the naphthenate can be readily dispersed in all soaps.

Incidentally M.D. Curwen has recently produced a very stable emulsion of copper naphthenate which should increase its possibilities. One rather promising application of the emulsion, which is a perfectly clear green liquid, is for the treatment of concrete affected with fungus growth. The writer understands that the famous French Maginot Line, which is built almost entirely of concrete, is suffering a great deal from this trouble, and here appears an opportunity for copper naphthenate.

It seems feasible that in view of the large quantities of Bordeaux mixture that are employed in horticulture, specially in vineyards, that a more efficient spray could be produced using copper naphthenate emulsions. On a cost basis, and this is all important to the farmer, the latter appear to hold out good hopes.

Pyrethrum Evaluation

*Relation of pyrethrin content of pyrethrum flowers to their toxicity to mosquito larvae**

By M. S. Lowman
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Bureau of Ent. and Plant Quarantine

A NUMBER of methods of evaluating pyrethrum flowers (*Chrysanthemum cinerariaefolium*) by determining their toxicity to various test insects are in use and others have been proposed. The use of mosquito larvae has been suggested by Ueno[5] as a measure of toxicity but there appears to be no mention in the literature of any extensive tests to show the correlation of pyrethrin content with toxicities so determined. The data in this paper deal with the correlation of the toxicities of the alcoholic extracts of pyrethrum flowers, as determined by the use of mosquito larvae, with the pyrethrin content of the flowers as determined by the Seil method[4].

In connection with investigations now under way in the Division of Drug and Related Plants of the Bureau of Plant Industry, on the possibilities of pyrethrum as a crop in this country it has been necessary to determine the quality of many samples of the flowers. Since the determination of the pyrethrin content of a large number of flower samples requires a great deal of time, the more rapid method of finding their toxic value by the use of mosquito larvae was resorted to. However, the pyrethrin content of a considerable number of the samples was determined as a check on the accuracy of the biological method. Inasmuch as the principal objective in this case is to develop strains that produce flowers with a high percentage of pyrethrins, particularly of Pyrethrin I, it was important to determine definitely with what accuracy this method of testing will detect such samples.

The flower samples included in the data submitted were derived from various sources. In some cases the samples were composites from many plants, such samples being obtained from widely separated sections of the United States. Others consisted of flowers from individual plants selected for some special character in connection with a general program of improvement through selection. It is not the purpose here to compare the toxicity of the various samples with reference to their geographic source or other special characters, but rather to use the available data representing the many individual lots of flowers to compare pyrethrin content with toxicity to mosquito larvae.

As stated, the flowers were obtained from various localities and consequently were collected and dried by a number of individuals. Although uniform instructions were given for harvesting and drying the flowers the degree of maturity and the conditions under which they were dried were undoubtedly not the same in all cases. This, and the variation in climatic and soil conditions under which they were produced, doubtless affected the pyrethrin content and toxicity to some extent. There is a possibility that such factors may also influence the degree of correlation that is to be expected between chemical and biological methods of evaluation.

Preparation of Extracts

The air-dried flowers were further dried in a vacuum oven at 80° C. for 4 hours to bring them practically to a moisture free basis. They were then ground to a 20-mesh powder in a hand mill and 15 gm. samples were immediately placed in extraction thimbles and allowed to stand over night in soxhlet extractors in contact with petroleum ether (B.P. 30-60° C.). The following day they were extracted for six hours on an electric hot plate. The solvent was then removed by distillation on a steam bath, the last traces being removed by blowing air into the flask until no odor of petroleum ether could be detected. The pyrethrum resins were then dissolved in hot 95 per cent alcohol. The addition of a small quantity of sand to the extraction flask, before beginning the extraction, was found to facilitate both the removal of the last traces of the solvent and the redissolving of the resins in alcohol. It was found that five washings of the contents of the flask with 10 cc. portions of hot alcohol removed all the pyrethrins even though the final washing was not colorless. The alcoholic extract was cooled to 25° C. and made up to 60 cc. with 95 per cent alcohol so that 1 cc. contained the pyrethrins from 250 mg. of dry pyrethrum flowers. Ten cc. of this solution were removed immediately for the biological tests and the remainder, represent-

* The pyrethrin determinations were made in the Division of Drug and Related Plants, Bureau of Plant Industry, and the biological tests in the Division of Control Investigations, Bureau of Entomology and Plant Quarantine.

ing 12.5 gm. of flowers, was available for the pyrethrin determinations. The extracts were kept in a refrigerator at about 10° C. until used.

Biological Tests

The entomological materials required and the method of using mosquito larvae as test insects have been described by Campbell, Sullivan, and Smith[1].

Duplicate tests on 19 extracts and the standard were usually made each day. The standard, an alcohol extract of pyrethrum flowers that contained approximately equal amounts of Pyrethrins I and II, was made up to contain 5 mg. of total pyrethrins per cc. of ethyl alcohol†. A fresh standard of the same strength was prepared for each season's work. The purpose of the standard was to measure the varying resistance of the mosquito larvae from day to day.

The extracts of unknown pyrethrin content (250 mg. of pyrethrum flowers per cc. of ethyl alcohol) were diluted for testing by adding 0.1 cc. of the alcoholic extract to 9.9 cc. of ethyl alcohol, and adding 0.1 cc. of the resultant solution to 100 cc. of distilled water in a 125 cc. Erlenmeyer flask. The standard was diluted to 0.05 ppm of pyrethrins. A decrease in the resistance of the mosquito larvae during part of the test period made necessary a reduction of one-half in the concentration of the extracts used in all tests during that period. Lots of 50 or 100 larvae, depending on the available supply, were counted out and transferred to the Erlenmeyer flasks that contained the solutions to be tested. The effect of the pyrethrins on the larvae was soon apparent. The larvae that were to be killed by the solution sank, twisting about, to the bottom of the flasks, and remained there after several unsuccessful attempts to rise to the surface. As is the case with nicotine, larvae that withstood the initial action of the pyrethrins seemed to become accustomed to the environment and seldom died during the test period. The percentage of mosquitoes "down" at the end of 4 hours was used as the index of toxicity.

The supply of fourth instar mosquito larvae used in the tests came from two sources. During the summer months, collections of eggs of the species *Culex Pipiens L.* were made on the ground of the National Agricultural Research Center, Beltsville, Md. During the winter months, egg masses of the species *C. quinquefasciatus* Say. were sent to this station from the Bureau of Entomology and Plant Quarantine laboratory at Orlando, Fla., by A. M. Phillips. Preliminary tests had shown that these two species reacted similarly to pyrethrum extracts.

The "toxicity number" of a sample was obtained by dividing the percentage of mortality caused by the sample by the percentage of mortality caused by the standard extract of known pyrethrin content. By this means the results, which sometimes varied from day to day due to variation in the resistance of the mosquito larvae, were placed on a more comparable basis. It can readily be seen that, if the difference between the percentage mortalities caused by the standard and a sample of unknown toxicity were great and the variation in the resistance of the mosquito larvae varied widely from time to time, the toxicity number would not give a close comparison between samples. In general, however, the closer the toxicity number approaches one, the more reliable basis for comparison it becomes. Small differences in mortality near the 100 per cent or zero level indicate greater variations in amounts of toxic agents present than similar differences at medium levels of mortality. Relatively few of the samples caused mortalities at or very near either the 100 per cent or zero level because the pyrethrin concentrations of the standard and the unknowns were adjusted to such strength that the great majority of the extracts produced mortalities near the 50 per cent level. Near this level small differences in pyrethrin concentration are indicated by wider differences in mortality of the larvae. The primary object of these studies was to separate the good from the poor samples, therefore, the toxicity number was considered a practical means of accomplishing this. However, to determine the accuracy of the single duplicate test, a number of the extracts were again tested on five separate days. Forty-six of the extracts previously used were tested on five different days and the average number of larvae killed compared with the toxicity number obtained by means of the single test in duplicate. For convenience these two methods of testing are referred to hereafter in this paper as the first and second methods, respectively.

Discussion

In 112 samples, representing the flowers from that number of individual plants, the highest proportion of Pyrethrins I and II of the total pyrethrins present was 76.92 and 66.94 per cent, respectively. There were 81 samples which contained more Pyrethrin I than Pyrethrin II, 8 with about equal quantities (± .02 per cent) and 23 with less Pyrethrin I than Pyrethrin II. On the whole, the Pyrethrin I content of the flowers from individual plants is more variable than that of Pyrethrin II. The average content of Pyrethrin I for the 112 samples of flowers from individual plants was .61 per cent and that of Pyrethrin II was .45 per cent, making an average total pyrethrin content of 1.06 per cent. The average toxicity number, as determined by the first method was .631. This toxicity number, being the average of 112 samples of flowers with varying proportions of the two pyrethrins, should represent quite accurately the true toxic value of a sample of flowers with an equivalent content of pyrethrins. There are three such samples, included in Table I, namely, Nos. 286, 5, and 287 which have pyrethrin content and toxicity numbers agreeing closely with this average.

Table 1 includes the results from 31 of the samples which were retested by the second method. Thir-

† The writers are indebted to Dr. H. L. J. Haller of the Division of Insecticide Investigations, Bureau of Entomology and Plant Quarantine for the preparation of the standard extract.

Table I—Comparative Rating of Pyrethrum Extracts Based on Content of Pyrethrin I, Total Pyrethrins and Toxicity to Mosquito Larvae

Sample No.	PERCENT OF PYRETHRINS			TOXICITY TO MOSQUITO LARVAE DETERMINED BY			RANK ACCORDING TO			
	Pyrethrin I	Pyrethrin II	Total	Percent of Pyrethrin I in the total	First Method Toxicity No. (1)	Second Method Ave. % of larvae killed	PYRETHRIN CONTENT Pyrethrin I	PYRETHRIN CONTENT Total	TOXICITY BY First Method	TOXICITY BY Second Method
86	1.08	.57	1.65	65	.875	93	1	1	6	1
24	1.05	.41	1.46	72	.747	91	2	4	11	3
85	.96	.55	1.51	64	.805	86	3	3	9	5
59	.94	.39	1.33	71	1.079	92	4	8	2	2
84	.89	.52	1.41	63	.552	75	5	6	22	11
87	.76	.59	1.35	56	.655	80	6	7	16	7
6	.74	.56	1.30	57	1.060	76	7	9	4	9
89	.71	.55	1.26	56	1.170	86	8	10	1	6
4	.69	.54	1.23	56	.840	46	9	13	8	22
83	.68	.76	1.44	47	.632	91	10	5	19	4
8	.67	.52	1.19	56	.740	67	11	14	12	13
147	.66	.86	1.52	43	1.062	77	12	2	3	8
357	.65	.35	1.00	65	.261	68	13	19	28	12
345	.65	.32	.97	66	1.000	57	14	22	5	16
286	.61	.42	1.03	59	.573	62	15	18	21	14
5	.61	.47	1.08	56	.640	53	16	16	18	18
287	.59	.48	1.07	55	.610	57	17	17	20	17
289	.58	.54	1.12	52	.683	45	18	15	14	24
372	.57	.68	1.25	45	.428	59	19	11	23	15
331	.56	.69	1.25	45	.857	46	20	12	7	23
285	.51	.48	.99	51	.646	52	21	21	17	19
290	.50	.39	.89	56	.378	33	22	26	25	29
312	.49	.41	.90	54	.767	49	23	23	10	21
310	.49	.41	.90	54	.658	45	24	24	15	25
356	.49	.41	.90	54	.152	36	25	25	29	27
82	.49	.39	.88	56	.322	76	26	27	26	10
346	.48	.52	1.00	48	.283	44	27	20	27	26
7	.43	.38	.81	53	.380	18	28	28	24	30
288	.33	.33	.66	50	.122	12	29	30	30	31
123	.31	.41	.72	43	.685	52	30	29	13	20
42	.27	.35	.62	43	.121	34	31	31	31	28
Averages	.63	.49	1.12	56	.638	60				

(1) The "Toxicity Number" is obtained by dividing the average percentage of larvae killed by the sample by the average percentage kill by the standard in duplicate tests.

teen of these were included because their toxicity values did not agree with their pyrethrin content. They show the poorest correlation between toxicity and pyrethrin content of the 112 samples examined. Only 3 of the remaining 18 samples were materially changed in rank by testing with the second method.

In the table the first ranking column merely indicates, in descending order, the rank of the 31 samples according to Pyrethrin I. The second column indicates the relative position of each sample based on its percentage of total pyrethrins.

The third column gives the position or rank of each sample on the basis of its toxicity number, as determined by the first method and the fourth column represents the toxicity ranking according to the more detailed second method. In assigning ranking numbers to more than one sample of the same value consecutive numbers were used. It is evident that a fair degree of correlation would necessarily result between toxicity and Pyrethrin I, II or total pyrethrins in samples ranked in this manner where the proportions of the two pyrethrins in the samples do not differ greatly. Also if the two pyrethrins were equally toxic to mosquito larvae the percentage of total pyrethrins should correlate with toxicity without regard to the proportions of the two present. It will be noted that the Pyrethrin I and total pyrethrin content give about equal indication of the comparative toxicities except in samples with very high or very low proportions of Pyrethrin I. This varying proportion of the two pyrethrins present has the greatest influence on the toxicity of samples which give a medium kill of the larvae and tends to diminish as the maximum or minimum kill is approached. Culbertson[2] reporting on studies of variation in toxicity of individual plants, states that laboratory tests on kerosene extracts had shown Pyrethrin I content to be an accurate basis for estimating toxicity. By comparing the rankings based on toxicity by the second method with those based on Pyrethrin I content, it is found that 24 of the 31 samples agree within 4 points, and that when the rankings based on toxicity and the percentages of total pyrethrins are compared 20 of the samples are in agreement within that limit. Nos. 4 and 82, which showed good correlation in this respect by the first method, gave results by the second method that are considerably out of agreement with both the Pyrethrin I and total pyrethrin content. On the other hand, Nos. 84, 289, and 123, which showed poor correlation by the first method, gave much better results by the second method. On the whole, the toxicity values obtained by the second method of testing are more in accord with both Pyrethrin I and total pyrethrin content than those obtained by the first method. The thirteen samples in which there was poor correlation between toxicity as determined by the first method and their percentages of pyrethrins were found

to be in very good agreement in this respect by the second method. Attention is called to Nos. 312, 310, and 356 which contain exactly the same percentages of the two pyrethrins. When tested by the first method they occupy positions 10, 15, and 29 in the toxicity number rankings but when tested by the second method their positions became 21, 25, and 27, respectively, which shows them to be more nearly of equal toxicity, as would be expected from their pyrethrin content.

The data presented in Table 2 show the relation of varying ratios of Pyrethrins I and II to the toxicity to mosquito larvae, as determined by the first method. The samples in this table, selected from the large number examined, represent both the extremes in variation of Pyrethrin I and II content and those samples having equal quantities of the two pyrethrins present. They are arranged in three groups of 12 each. The samples in group 1 are very high in Pyrethrin I, those in group 2 contain approximately equal quantities of the two pyrethrins while those in group 3 contain less Pyrethrin I than II. Pyrethrin I constitutes 70.91 per cent of the average total pyrethrins in group 1, 50 per cent in group 2, and only 42.98 per cent of the total in group 3. The average total pyrethrins are about equal in groups 1 and 3 but the former group is about 78 per cent more toxic, due to its higher Pyrethrin I content. Groups 2 and 3 contain the same average amounts of Pyrethrin I but the latter group contains about 33 per cent more Pyrethrin II. However, their toxicity numbers are approximately the same. According to these results it appears that Pyrethrin I content of the flowers and their toxicity to mosquito larvae have a definite relationship. Therefore, the toxic value of a sample of flowers, as determined by the method herein described, is dependent not only on the total amount of pyrethrins present but also on the relative proportions in which the two pyrethrins occur. A few of the samples in each group, however, are not in good agreement with respect to pyrethrin content and toxicity numbers. Thus in group 1, No. 1 has a toxicity number somewhat lower than the pyrethrins would indicate and No. 10 has a higher toxicity number than would be expected from the pyrethrins present. Samples Nos. 4, 6, and 8 in group 2 have toxicity numbers too low and No. 12 too high for the pyrethrins shown. In group 3 Nos. 1, 9, and 10 have toxicity numbers in excess of those that would be expected from their content of pyrethrins. On the other hand, Nos. 2 and 4 in this group are given toxic values too low for the percentage of pyrethrins present. Nevertheless, when the averages are taken for the samples in the three groups, the resulting values should fairly represent the relative toxicities of Pyrethrins I and II, at least when the toxicity is determined on alcoholic extracts by means of the procedure herein described. Hartzell and Wilcoxon[3] found that the physical condition of the pyrethrins at the time of application is a determining factor in the relative toxicity of Pyrethrins I and II, at least so far as *Aphis rumicis* and *Musca domestica* are concerned. Whatever conclusions may be drawn from the data presented concerning relative toxicity of the two pyrethrins should, therefore, be considered only with regard to the nature of the extracts and the particular test insect used.

Table II—Comparison of the Toxicities of Pyrethrum Flowers Containing Varying Proportions of Pyrethrins I and II

No.	GROUP 1 WITH HIGH PROPORTION OF PYRETHRIN I				GROUP 2 WITH ABOUT EQUAL PROPORTION OF PYRETHRIN I and II				GROUP 3 WITH LOW PROPORTION OF PYRETHRIN I			
	Pyrethrins			Toxicity	Pyrethrins			Toxicity	Pyrethrins			Toxicity
	I	II	Total	Number	I	II	Total	Number	I	II	Total	Number
1	1.00	.30	1.30	0.990	.74	.75	1.49	.901	.68	.86	1.54	1.062
2	.94	.39	1.33	1.079	.59	.58	1.17	.875	.68	.76	1.44	.632
3	.91	.36	1.27	1.050	.58	.54	1.12	.683	.61	.70	1.31	.860
4	.82	.28	1.10	1.014	.57	.58	1.15	.345	.57	.68	1.25	.428
5	.80	.48	1.28	1.400	.55	.57	1.12	.883	.56	.69	1.25	.857
6	.78	.38	1.16	.874	.52	.53	1.05	.483	.50	.63	1.13	.379
7	.78	.32	1.10	.793	.51	.48	.99	.646	.49	.69	1.18	.566
8	.77	.30	1.07	.864	.48	.52	1.00	.283	.48	.52	1.00	.283
9	.71	.25	.96	.923	.46	.43	.89	.478	.40	.81	1.21	.531
10	.65	.32	.97	1.000	.33	.33	.66	.122	.39	.62	1.01	.500
11	.65	.30	.95	.886	.32	.35	.67	.143	.29	.54	.83	.071
12	.54	.21	.75	.341	.26	.24	.50	.355	.27	.35	.62	.121
Ave.	.78	.32	1.10	.935	.49	.49	.98	.516	.49	.65	1.14	.524

The correlation coefficient[6] of the simple correlations of some of the data presented in table 1 are as follows:

Total pyrethrins—% mortality...+0.80
Total pyrethrins—toxicity number.....+0.63
Pyrethrin I—% mortality.....+0.81
Pyrethrin I—toxicity number....+0.57

This indicates a highly significant positive correlation and that either Pyrethrin I or total pyrethrins are good indicators of toxicity. The correlation is not sufficiently high to make close predictions of one variable from the other. However, the correlation does show that mosquito larvae tests do point out which samples are low or high in pyrethrin content. An additional statistical analysis was made of the data on 112 samples of pyrethrum flowers, only part of which are included in Table 1. The correlation coefficients between the toxicity number and the total pyrethrins, Pyrethrin I and Pyrethrin II were +0.69, +0.65, and +0.39, respectively. From these results it seems evident that there is a strong association between the total pyrethrins or Pyrethrin I and toxicity but that there is very little association between Pyrethrin II and toxicity.‡

(*Turn to Page* 119)

‡ The authors take this opportunity to thank Mr. F. M. Wadley for his suggestions and assistance with the statistical analysis of these data.

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Evaluation of Modern WAX POLISHES

By Charles S. Glickman

Part II

IN THE opinion of some manufacturers, the current sale of solvent type waxes is rising. It might be wise in the light of future policy to look into the causes for such a reversal of the sales trend if such are the facts. There can be but little doubt that the development period of water emulsion waxes which began somewhere about 1932, tended to reduce the extensive sale which the solvent type of product had enjoyed up until that time. The reasons for such a trend are quite evident when subjected to close scrutiny. In the first place, the action of a wax polish must be a dual one,—protective as well as beautifying. Therefore, regard the basic differences between both of these two general classes in the light of the hardness of the resulting applied film, the amount of available wax present in the film and the resistance of that film to wear under various conditions. The melting points required in specification products for each of the two main types of polishes are as follows:

Product	*M.P. Wax Content*
Water emulsion polish	176°F. (6)
Paste solvent wax	168°F. (7)
Liquid solvent wax	168°F. (8)
Pure carnauba wax	183-86°F.

It will be seen that the melting point of the solids content of the water emulsion type of polish is roughly ten degrees higher than that of either a solvent liquid or paste wax polish. If the water wax is prepared with pure carnauba, as so few of them are, and the solids content increased to a point sufficient to insure a greater amount of available pure carnauba than is generally present in a good paste product, then the water emulsion type will yield better results when used as a floor application. This is of course disallowing the possibility of failure of the film due to water.

Since the soap, borax and shellac(x) play no important part as regards performance, the performance of a water wax usually varies directly with the amount of pure carnauba present. It will be noticed that the also important factor of adequate dispersion is not considered since it is assumed that production methods are sufficiently standardized to insure this factor being a satisfactory constant. Thus, the polishing properties of a product are directly dependent upon the hardness and intrinsic gloss of the main active ingredient. Products prepared with softer waxes or brittle and tacky adulterants will necessarily fail in performance when compared against a water emulsion product of pure carnauba content or a good paste wax. Thus the trade is confronted with a situation wherein manufacturers of water emulsion waxes are deliberately forcing their clientele towards the use of paste wax polishes.

One of the main complaints encountered in the use of paste or liquid solvent waxes on floors has been due to their tendency to scuff(y) in greater degree than a water emulsion type of polish. However, since there is an amount of wax almost triple the amount present in a water emulsion product, it can be readily understood why the paste type tends to resist wear to a more satisfactory degree than the emulsion type. This is undoubtedly the reason why the paste type is often preferred where there is heavy traffic.

Before going further, consider briefly the subject of water resistance. There have been numerous attempts to produce water emulsion products of marked resistance to water. These have been set forth as being adaptable for conditions of heavy traffic where contact with water is common. Assume that such a product is applied and exposed to traffic and moisture. That any product is completely unaffected by water and traffic in combination is hardly likely and quite impossible. Therefore, it gives a situation where part of the film has been more or less removed and the balance of the film left unaltered.

The next step is either to patch the film by overlapping with fresh wax or else to remove the entire film and start anew. In either case, the result is rather unsightly. The patched film gives rise to built up layers in the seldom used parts of

(x) Experiments with various formulae including and excluding shellac in various amounts have definitely shown that the presence of the former in no way either adds or detracts from the property of non-slipperiness. Neither did the presence in a product of shellac in any way enhance the spreading properties to a degree which could not be attained by the simple addition of ammonia by itself. The gloss obtained in products including or excluding shellac did not vary either as closely as could be determined by careful measurements.

(y) Scuffing can be briefly defined as the result of uneven wearing of a wax film causing long and rather unsightly streaks destroying the effect of a smooth and even film of high lustre.

the floor and the removal of the entire film presents numerous difficulties, especially where the color and type of floor covering is such that any residual film left is easily visible. In the author's experience, even test panels that have been used with all type of products have proven themselves difficult of thorough cleansing, even where triethanolamine products have been used. Alkalies accompanied by alternate treatment with solvents and boiling water, soap and steel wool have effected a removal of the films but with the result also of wearing off the surface of the panels. On the other hand, the removal of paste wax films has been simple.

Return now to a comparison of water emulsion wax polishes of the requisite high wax content as opposed to paste waxes:

First: For conditions of normal wear, a water emulsion polish is generally equal to a paste or liquid solvent type of product. *Secondly*, the labor factor in as much as buffing is concerned is important, since it was on the elimination of this particular requirement of after treatment that water emulsion waxes established themselves in the market. Where it is necessary to buff a water emulsion wax polish in order to attain the proper lustre, then sooner or later the consumer will revert to the use of a paste or liquid solvent product as a polishing medium. *Third*, there is present at all times the hazard of inflammability in the use of solvent polishes but which factor can be overcome by the judicious addition in the proper amount of non-inflammable solvents. Incidentally, it might likewise serve to eliminate the occurrence of disastrous fires in wax manufacturing plants which seem to have been in style in the recent year or two.

Fourth, a paste or liquid solvent wax polish can now be prepared by the use of certain synthetic waxes blended in the proper proportions with natural waxes so that the resultant finishes will be hard enough to resist scuffing. They will also result in finishes harder than those obtainable with carnauba. This will therefore result in a product of higher gloss and greater wear resistance under heavy traffic conditions.

Fifth, the fallacy which formerly existed about the supposedly deteriorating effects of certain ingredients or solvents on such surfaces as rubber, composition, asphaltum and linoleum flooring is rapidly being dissipated and corrected in the light of recent experimental research.

TURN now to the subject of what the effect of various ingredients are when incorporated in a water emulsion wax polish. Consider the following factors in the light of these ingredients: *ease of application, effect upon drying, resistance to water, non-slipperiness, scuffing, degree of dispersion, gloss or lustre and wearing ability.* The products that will be considered are: paraffins, ozokerite, ceresine, candelilla, montan, carnauba, synthetic waxes, rosin, shellac.

The first three are the mineral non-saponifiable waxes; paraffin, ozokerite and ceresine. Under certain conditions, they may be incorporated together with carnauba wax to form water emulsion waxes. Their effect, depending upon the extent of their presence, and their relative degree of hardness tend to raise the level of water resistance of the product of which they are a part. However, they likewise tend to produce severe scuffing effects, streaking and unevenness of film, rapid loss of lustre during wear and what is probably the most important effect, the rapid tendency to disassociate themselves from the emulsion as a whole unless extreme care in compounding and high temperatures are employed in the preparation of the product.

The second group of waxes which because of their emulsifiability lend themselves to simpler manipulation are candelilla, montan and carnauba. However since the latter is the best material for a water emulsion polish any further discussion of this wax would be trite and unnecessary. Candelilla, on the other hand, can and will emulsify to a considerable extent as will montan, but only in the presence of an appreciable amount of carnauba. Yet, the finishes obtained with these two latter waxes are not equal in the intensity of their gloss with preparations made with pure carnauba. The bleached montan is quite useless for this type of product, and the crude grade causes severe coloration. The finished products likewise exhibit a tendency towards tackiness and scuffing and unless special attention is paid to the processing, streaking may likewise result. They have no effect in increasing water resistance. Since their use is limited by virtue of these facts they can be utilized only in slight amounts with carnauba, a maximum of not more than 10 per cent without serious effects. Their use as substitutes for carnauba is not warranted, especially in view of the fact that they definitely detract from the degree of high performance that can be obtained with the pure wax.

The use of rosin and shellac in preparation of water emulsion polishes has grown to a rather large extent despite the fact that rosin is specifically barred as an active ingredient by the association of floor covering manufacturers as well as in the more important commercial specifications. It furthermore lends itself to rapid wear, tendency towards instability, a high degree of tackiness, streaking upon application and brittleness of film.

Shellac which is probably the most widely used material as an active ingredient of water emulsion polishes, excluding the obvious emulsifying agents and carnauba, is likewise brittle in effect upon drying, and of doubtful value in its effect in reducing the degree of slipperiness in the final product. It is an aid in reducing scuffing and lends itself towards definitely improving the spreading properties and reducing the amount of streaking in the final product. Of course, the fact that it requires additional alkali for solution lends its use as an active ingredient in the preparation towards

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greater alkalinity, and lessened water resistance.

The use of synthetics and carnauba substitutes is a subject that is in its technical infancy, although some of the research work being done has produced extremely interesting results which may be the solution to the prob'em of satisfactory carnauba substitutes for use in water emulsion polish preparations. Research laboratories are working along distinctly different lines; namely, one along the line of blends of what is believed to be candelilla and montan waxes and the other along the line of completely synthetic organic compounds.

A summarized evaluation of the various wax products whose compositions are shown in the other tables is given in Table 4. This gives opportunity to compare composition in its relation to performance rating.

TABLE 4

Sample (a)	Wear	W. R. (b)	General Rating
1	Fair	Poor	Fair
2	Fair	Poor	Fair
3	Fair	Fair	Good
4	Fair	Fair	Fair
5	Poor	Fair	Fair
6	Good	Fair	Good
7	Good	Fair	Good
8	Poor	Fair	Poor
9	Good	Fair	Good
10	Good	Excellent	Good
11	Poor	Poor	Poor
12	Good	Poor	Fair
Triethanolamine	Fair	Poor	Fair
Morpholine	Good	Excellent	Good

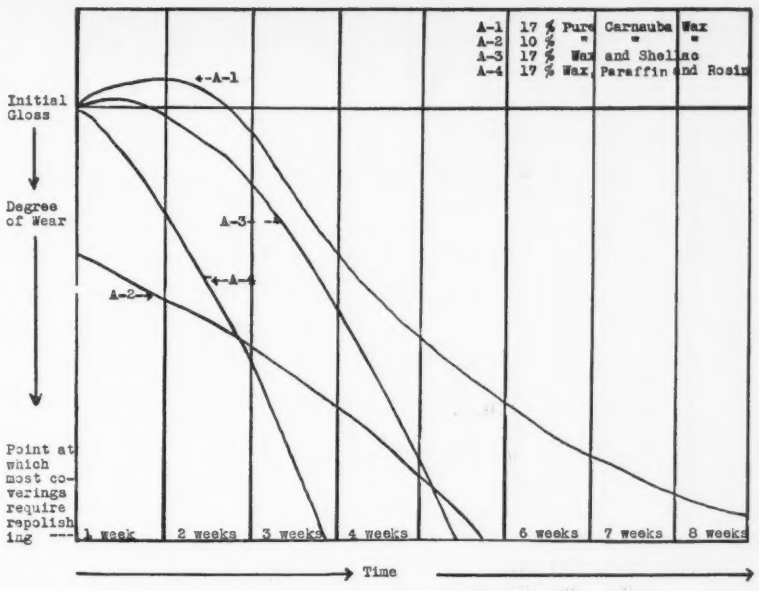
(a) The samples described in the above stated table are arranged in the same order as that employed in Table 1.

(b) The method of determination of the degree of water-resistance is described in the text following this table.

The method of determining the relative degree of wear was by placing panels of linoleum of good grade and taken from the same roll on successive steps of a stairway exposed to considerable traffic. The various panels were equally coated with the samples under observation and carefully examined after various periods of time.

The degree of water resistance was determined in two ways which results were then averaged in order to gain a general idea of performance in this respect. Single coats were tested two hours after application on the same large panel of linoleum by dropping clear cold water on the dry film and observing the result. The same test on a large piece of similar linoleum but with two coats applied after an interval of 8 hours following the application of the first coat and a drying time of 8 hours after the application of the second and final coat. The final test was made after a period of 48 hours elapsed during which the coated panels were exposed to wear and following which wear they were carefully but quite thoroughly cleaned free from dust and mechanically deposited dirt.

ILLUSTRATING RELATIVE DEGREE OF WEAR



The accompanying chart serves as a practical graphical illustration of the effects of various components upon the life of relative types of water emulsion polishes. Four preparations were made in the laboratory. The *first* contained 17 per cent of pure No. 1, yellow, carnauba; the *second* contained but 10 per cent of the same grade of carnauba; the *third* contained a total of 17 per cent of carnauba and shellac; and the *fourth* contained 17 per cent of a mixture of carnauba, paraffin, and rosin. The emulsifier for the first three was a triethanolamine soap; for the latter and last, it was a special type of emulsifier.

It will be seen that preparations containing pure carnauba wax have a higher initial rise in gloss following application than any other type of preparation. That is because wax is the only product which can be buffed without loss of luster. It will be. likewise, noticed that the loss of luster or life of the gloss (wear) is more gradual and extended than a preparation containing shellac. The cause of this is that shellac being brittle and non-polishing will tend to scale off. Products having rosin or shellac, or for that matter even candelilla or montan will tend to lose their initial high luster more rapidly than will pure carnauba due to the difference in hardness.

Consider what the ideal water emulsion preparation should do and what it should contain. A product in order to have the best working properties and longest life as well as highest gloss should be composed of nothing but pure carnauba wax of the best grade obtainable—No. 1, yellow. It should be present in amount of at least 17 per cent and have as an emulsifier, a soap which will not darken the product or cause it to be other than white. This soap should also have the property of making the dry film water resistant

(*Turn to Page* 117)

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Preparation of Pyrethrins

*Isolation of pyrethrin II—Effect of aqueous extraction on pyrethrin content of pyrethrum**

By Milton S. Schechter and H. L. Haller

Bureau of Entomology and Plant Quarantine

A WIDE difference of opinion exists as to the relative insecticidal value of the two toxic principles of pyrethrum flowers, pyrethrin I and pyrethrin II. This lack of agreement seems to be due to the fact that the pure pyrethrins have never been available for toxicological studies. The Division of Insecticide Investigations has been engaged for some time in a study of the constituents of pyrethrum flowers. One of the objects of these studies is the preparation of the pure pyrethrins in unaltered form so that they may become available to the entomologist for insecticidal tests.

A considerable advance toward this accomplishment was made in improving the method of preparing concentrates high in total pyrethrins and separating concentrates into fractions in each of which one of the pyrethrins predominates. The method[1] developed employs a petroleum ether oleoresin containing approximately 30 per cent total pyrethrins, in which pyrethrin I and pyrethrin II are present in about equal amounts. Addition of a small quantity of water to an acetic acid solution of this material precipitates the fats and waxes in a semi-solid form, which after hardening by cooling are readily removed by filtration. By addition of water to the filtrate and extraction with petroleum ether, a product is obtained with a total pyrethrin content of 60 to 65 per cent, but still containing fatty acids and other impurities. For the extraction of the acids, aniline is the only suitable solvent that does not involve formation of emulsions. By agitation of the pyrethrin concentrate in this solvent with aqueous potassium carbonate, the fatty acids are removed. The product separating when the aniline solution is acidified has a concentration of 65 to 70 per cent total pyrethrins. When this concentrate is dissolved in a mixture of acetic acid and petroleum ether and sufficient water is added to cause a separation into two layers, the pyrethrin II tends to concentrate in the acid layer and the pyrethrin I together with most of the impurities concentrates in the petroleum ether layer. Since the impurities present in the concentrate tend to follow the pyrethrin I, the method is more favorable for the purification and concentration of pyrethrin II. By repetition of the process just described with the material isolated from the acetic acid solution, a further concentration of pyrethrin II is attained.

The foregoing procedure gives results that are fairly satisfactory for the isolation of pyrethrin II, but further work is necessary on the separation of pyrethrin I from pyrethrin II and from the inert material.

Numerous investigators have shown that water extracts appreciable quantities of material from pyrethrum flowers and that the aqueous extracts are non-toxic to insects. The removal of the constituents soluble in water should give a marc relatively richer in pyrethrins, and although the constituents soluble in water are probably insoluble in petroleum ether, it appeared of interest to determine the effect of preliminary extraction of the flowers by water on the percentage of pyrethrins in the subsequent petroleum ether extracts. In the experimental part described below, results are given which were obtained with commercial pyrethrum powder and with fresh pyrethrum flower heads. The latter were obtained through A. F. Sievers, Division of Drug and Related Plants, Bureau of Plant Industry, United States Department of Agriculture, who was kind enough to supply us with flowers from his experimental plot at Glendale, Md.

Experimental Part

In all the experiments pyrethrin I was determined by the Seil method,[2] and pyrethrin II was determined by the Haller-Acree method.[3]

Experiment with Commercial Pyrethrum Flowers

The flowers used were of a commercial grade, 1 kg. yielding about 30-35 grams of oleoresin when extracted with low-boiling petroleum ether. The oleoresin contained about 25-30 per cent, or 8-9 grams, of total pyrethrins, the pyrethrins being present in approximately equal amounts.

One thousand grams of the finely ground powder were moistened slightly with water and allowed to stand in a closed container overnight. After thorough percolation with water, the marc was dried in a steam cabinet, yielding 687 grams of dried

* Constituents of Pyrethrum Flowers. For previous article in this series, see J. Org. Chem. 2, 484, (1937).

TABLE 1. EFFECT OF AQUEOUS EXTRACTION ON THE PYRETHRIN CONTENT OF FRESH PYRETHRUM FLOWERS

Experiment	Weight of fresh flowers	Weight of water-extracted dried and ground flowers	Weight of petroleum ether extract (oleoresin)	Pyrethrin content of oleoresin: Pyrethrin I	Pyrethrin II	Total	Weight of pyrethrins in oleoresin
	Kg.	Grams	Grams	Per Cent	Per Cent	Per Cent	Grams
1	2	262.0	15.0	11.8	12.9	24.7	3.71
2	2	269.0	12.0	8.7	11.2	19.9	2.39
3	2	447.0*	21.0	10.1	13.4	23.5	4.94

* — Dried; not extracted with water.

powder. Extraction of this powder with low-boiling petroleum ether yielded 29.0 grams of oleoresin, which on analysis contained 6.5 per cent of pyrethrin I and 15.7 per cent of pyrethrin II. The 29.0 grams of oleoresin therefore contained 22.2 per cent, or 6.44 grams, of total pyrethrins.

Part of the aqueous percolate was concentrated under reduced pressure and then extracted with ether. Tests on this ether extract showed it to be toxic to goldfish but not to the housefly.

Experiments with Fresh Pyrethrum Flowers

Three sets of experiments were begun on 2-kg. samples of fresh pyrethrum flowers four hours after they had been picked. Only opened flower heads free from stems were used.

Experiment 1.–Two kilograms of fresh flowers were boiled with water for 15 minutes to destroy enzymes, after which they were filtered on cheesecloth. After being ground in a Wiley mill, the flowers were percolated thoroughly with water, and then the extracted marc was dried in a steam cabinet, yielding 278.0 grams of dried marc. The flowers were ground finer in a Wiley mill, yielding 262.0 grams (16.0 grams lost in grinding), which upon extraction with low-boiling petroleum ether yielded 15.0 grams of oleoresin. Analysis of the oleoresin showed that it contained 11.8 per cent of pyrethrin I and 12.9 per cent of pyrethrin II. The total pyrethrin content of the oleoresin was therefore 24.7 per cent, or 3.71 grams.

Experiment 2.–Two kilograms of fresh flowers were ground in a Wiley mill, boiled with water for 15 minutes to destroy enzymes, and then filtered on cheesecloth. After the flowers had been thoroughly percolated with water, the extracted marc was dried in a steam cabinet, yielding 288.0 grams of dried marc, which after being ground finer in a Wiley mill weighed 269.0 grams (19.0 grams lost in grinding). Extraction with low-boiling petroleum ether yielded 12.0 grams of oleoresin, which on analysis contained 8.7 per cent of pyrethrin I and 11.2 per cent of pyrethrin II. The total pyrethrin content of the oleoresin was therefore 19.9 per cent or 2.39 grams.

Experiment 3.–This experiment was used as a control. Two kilograms of fresh flowers were partially dried in a steam cabinet (to facilitate grinding), yielding 470 grams of flowers, which were then ground fine in a Wiley mill. After completion of the drying in the steam cabinet, the flowers weighed 447.0 grams, and extraction with low-boiling petroleum ether yielded 21.0 grams of oleoresin. Analysis of the oleoresin showed that it contained 10.1 per cent of pyrethrin I and 13.4 per cent of pyrethrin II. The total pyrethrin content of the oleoresin was therefore 23.5 per cent, or 4.94 grams.

The results obtained are summarized in the accompanying table.

Summary and Conclusions

1. Experiments were conducted to determine the effect of preliminary aqueous extraction of pyrethrum flowers on the percentage of pyrethrins in the subsequent petroleum ether extracts.

2. Pyrethrum flowers lose about one-third of their weight when extracted by water. The aqueous extract contained a negligible amount of pyrethrins and, although the extract was toxic to goldfish, it was not toxic to the housefly.

3. Extraction of pyrethrum flowers by water followed by drying the marc in a steam cabinet causes a decrease in the amount of petroleum ether extract that is subsequently obtained. The pyrethrin content of this oleoresin remains about the same as that of the untreated flowers, or even less, which indicates that some of the pyrethrins are destroyed by such a treatment. Consequently this process is unsuitable for increasing the percentage of pyrethrins in the flowers or in the petroleum ether extracts.

References

[1] LaForge, F. B., and Haller, H. L., *J. Am. Chem. Soc.*, 57, 1893 (1935).

[2] Seil, H. A., *Soap*, 10, No. 5, 89 (1934).

[3] Haller, H. L., and Acree, Fred Jr., *Ind. Eng. Chem.*, Anal. Ed., 7, 343 (1935).

New Source of Phenols

Alkali lignin from cornstalks has been destructively distilled and gives a good yield of phenolic tar. The phenols were fractionally distilled both from the crude tar and from the chemically extracted phenolic portion of the tar. It was found possible to fractionate 40-55 per cent of the tar into constant-boiling cuts. The fractions were identified in large part as phenol, *ortho*-cresol, *para*-cresol, guaiacol, 3, 5-xylenol and creosol. Alkali lignin may be considered as a potential source of phenols which may become important in the future. Grover L. Bridger. *Ind. Eng. Chem.* **30,** 1174-80 (1938).

Fluorescent Polish

A fluorescent substance such as fluorescein or quinine sulfate, is added to an alkaline cleaning and polishing composition. I. F. Lindberg. Swedish Patent No. 91,885; through *Chem. Abs.*

SWEEPING COMPOUND

A new type based on cotton seed hull bran developed by Cotton Research Foundation

By H. S. Olcott
Cotton Research Foundation Fellow
Mellon Institute

SWEEPING compounds are used on floors for two purposes: (1) to aid in the accumulation of fine dirt, and (2) to minimize the raising of dust. They consist usually of inert granular materials moistened with oil or water. Ordinary wet white pine sawdust is often used. A number of patents have been granted for complex mixtures containing salt, sand, mineral wool, molasses, ground cork, corn cobs, etc., as adjuncts to or in place of the sawdust. The sweeping compounds on the market usually contain sawdust, sand and mineral oil of the paraffin oil type. They are sometimes dyed and may contain small amounts of essential oils such as oil of eucalyptus, sassafras, or pine to impart a pleasant odor.

The particles of a sweeping compound must be large enough to sweep easily, heavy enough not to scatter with the spring of the broom bristles, and wet enough to adhere to the dust and dirt with which they come into contact. Furthermore, the compound must not contain substances which will scratch marble or terrazzo, nor stain the flooring, and above all, the materials used must be inexpensive.

In the usual treatment of cottonseeds, the cracked hulls are separated from the meats by a blowing mechanism. The hulls are then reduced to small fragments in a beater. Some very short linters which have escaped the ginning processes are separated and removed by blowing. The remaining material, which is composed of hull fragments to which some short fibers remain attached, is the familiar cottonseed hull bran. It occurred to us that cottonseed hulls or hull bran might make an improved base for a sweeping compound because of the fine fibers which would, like a dust-cloth, tend to retain dirt and dust.

Several experimental sweeping compounds containing cracked hulls and hull bran were made up and tried out on cement floors. Those containing unbeaten hull particles were unsatisfactory. Even when oiled, they were light and did not brush properly. Furthermore, the larger particles tended to stick in the bristles of the broom. On the other hand, hull bran made a very satisfactory compound.

Since good results were obtained by this crude but practical means of investigation, a method was devised to measure the efficiency of sweeping compounds, with respect to their capacity for retaining fine particles. Since it is apparently the first procedure that has been used to evaluate sweeping compounds, it will be described in some detail. Precipitated chalk, which is obtained in the form of a very fine powder, was used as the material to be retained by the sweeping compound. Other fine powders would probably be equally satisfactory. The method depended upon the amount of chalk which could be shaken through an 80 mesh screen after thorough mixing with the sweeping compound, as a measure

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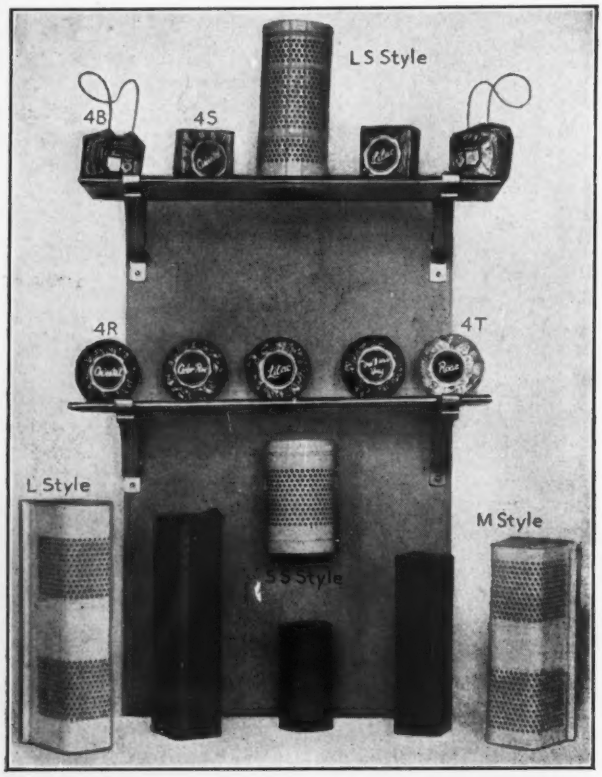

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of its retentiveness. A mechanical sieve shaker was used in the shaking and sieving operations.

The following results were obtained in a comparison of a hull bran sweeping compound (A) and a commercial sawdust base product (B). Three grams of precipitated chalk, previously screened (80 mesh), was mixed with 10 grams of A by shaking in a closed container for 3 minutes. The mixture was then shaken over the 80 mesh screen for 5 minutes. Approximately 0.1 gram passed the screen. Inasmuch as the same amount of material could be sieved from the sweeping compound alone, the oiled hull bran retained practically 100 per cent of the fine chalk.

The experiment was duplicated exactly using the sawdust base sweeping compound. After mixing, 1.7 grams of fines could be sieved from the chalk-compound mixture; less than 0.1 gram was obtained from the compound alone. Thus, the sawdust retained only 40 per cent of the chalk, although it contained 11 per cent oil as compared to the 4 per cent present in the cottonseed hull product.

The superiority of the hull bran product having thus been established, several mixtures were prepared and tried out. The most satisfactory one consisted of 95.6 per cent cottonseed hull bran and 4.4 per cent paraffin oil. These proportions could be varied somewhat with little change in the efficiency of the compound. Increasing the amount of paraffin oil, though improving the retentiveness somewhat, also increases the total cost of the compound. The substituents were thoroughly mixed in a mechanical mill for fifteen minutes or until the particles seemed uniformly oiled, and the compound was then ready for use without further treatment. No noticeable changes took place on storage.

Practical tests on wooden, cement, and marble floors have confirmed the results of the laboratory experiments. The cottonseed product is more efficient than oiled preparations containing sawdust. Although a given volume of the new product will cover as much floor space as do the sawdust compounds, the hull bran compound is much lighter in weight,[1] and consequently, pound for pound, it is distinctly more economical.

Cottonseed hull bran is available at such low prices[2] that the new sweeping compound could be made to compete with and even undersell the products now on the market. Office buildings, stores, and factories using the new compound would not only benefit from its greater efficiency, but would also be aiding an American major industry, cotton, by using one of its abundant by-products.

A patent on the cottonseed hull bran sweeping compound has been applied for. All rights are assigned to the non-profit Cotton Research Foundation, organized to expand markets for cotton and cotton products through research. The Cotton Research Foundation is located in the Cotton Exchange Building, Memphis, Tenn. The development of the cottonseed hull bran sweeping compound is incidental to a broad research program which is in progress at Mellon Institute and several southern universities.

[1] Standard U. S. barrel, 4.1 cu. ft., will hold approximately 170 lbs.
[2] Average price over 10 year period: $5.00 per ton.

Adopt Floor Finish Standards

The Maple Flooring Manufacturers Association has announced that new specifications for floor finishes will be available shortly. The present specifications cover both heavy duty finishes and gymnasium floor finishes for use on maple, beech and birch. The new ones are substantially changed and cover heavy duty finishes separately from gymnasium floor finishes. The new specifications were to be completed and available about November 1, 1938. They will become effective January 1, 1939. The approval of a finish by the M.F.M.A. requires after meeting these requirements that performance in actual use be demonstrated. All of the present approvals expire when the new specifications become effective. Copies of the new specifications can be obtained either from the Maple Flooring Manufacturers Association, 332 South Michigan Avenue, Chicago, Illinois, or the official laboratory, Foster D. Snell, Inc., 305 Washington Street, Brooklyn.

New Text on Shoe Polish

Leonard Hill, Ltd., London, have just published a new volume "Shoe Creams and Polishing Waxes," by Dr. J. Davidsohn and A. Davidsohn. It considers the various raw materials and also goes at length into manufacturing methods. Considerable space is given to the correction of faults that may arise in manufacture and the best methods of using the new synthetic waxes. Formulas are included, not only for shoe creams and polishes of all types, but also for floor polishes, mop oils and floor oils. Priced at 10s. 6d.

Entomologists Meet Nov. 17

The program for the symposium on control of household pests, to be held November 17 at the Lord Baltimore Hotel, Baltimore, in connection with the meeting of the Eastern Branch of the American Association of Economic Entomologists, has just been announced by Neely Turner of the Connecticut Agricultural Experiment Station. Among the speakers scheduled are the following: J. J. Davis—"Relations of Entomologists and Pest Control Operators"; J. L. Horsfall—"Common Problems Arising in Relation to Household Fumigations"; E. A. Back—"Control of Clothes Moths, Carpet Beetles and Psocids"; R. A. St. George—"Termite Control in Buildings"; and H. L. Haller—"Recent Progress in the Chemistry of Pyrethrum Flowers." Another speaker, as yet unnamed, will talk on—"Hazards in Relation to Household Fumigations."

Zonite Acquires Andron Co.

Zonite Products Corp., New York, recently acquired Andron Co., manufacturer of venereal prophylactics. The company will be operated as a wholly owned subsidiary of Zonite.

A Note on Rearing Houseflies

By Craig Eagleson and Roy Benke

Bureau of Entomology and Plant Quarantine
U. S. Department of Agriculture

RECENTLY several articles have appeared indicating that there is considerable variation in resistance to pyrethrum sprays of laboratory-reared houseflies, both among various lots of flies and between the sexes of the same lot. It has been suggested that steps should be taken to reduce this variation in the interest of greater consistency of fly-spray evaluation tests. One author goes so far as to propose reporting the toxicity of an insecticide toward males and females separately. The use of test lots in which the sexes are equally divided appears necessary in order to obtain a fair sample estimate of the wild population. It has also been pointed out that to obtain homogeneity among various sample lots of flies the entire population for each culture should be sampled. Males predominate in early emergence from puparia and. unless all flies of a culture are sampled, the sex ratio will not be unity and perhaps an abnormal range of susceptibility will result.

The laborious task of rearing the flies in very small cultures to obtain a better sample estimate of the whole population has been proposed. A better solution to the problem would be to sample the culture while the flies are in the pupal stadium. Separation of the pupae from the culture medium is difficult; and since houseflies normally pupate in the culture medium, sampling the pupae is not so simple as might appear.

At the Dallas, Tex., station of the Bureau of Entomology and Plant Quarantine. U. S. Department of Agriculture. where large numbers of houseflies (approximately 2.500) are used in each test, it was found convenient to culture the larvae in tubs of fermenting crimped oats. Since the publication of the rearing methods used (SOAP XIII. No. 12. 1937) the technic has been altered to permit sampling the entire culture lot of pupae.

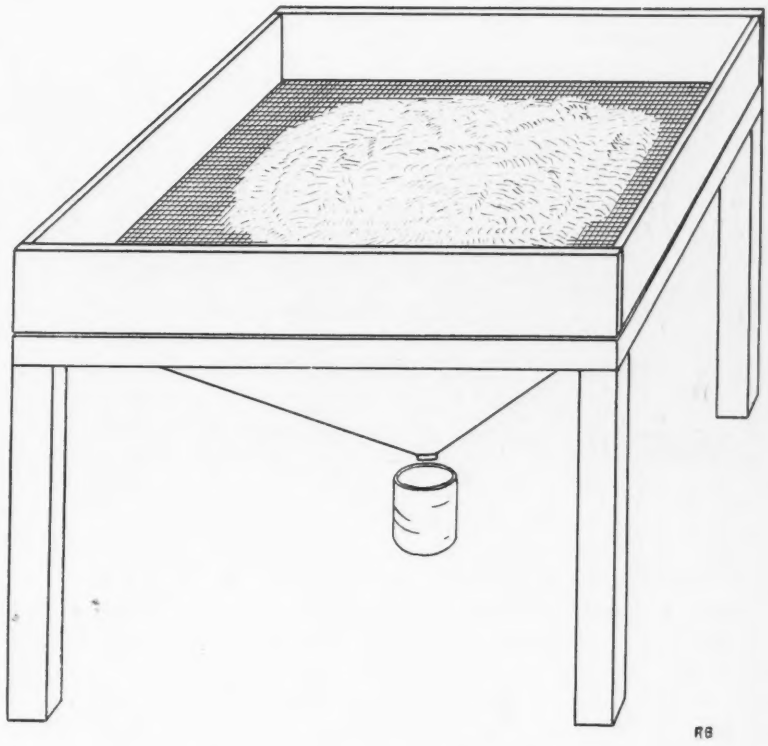

Fig. 1—Separator for reared housefly larvae.

When the larvae have finished feeding and the first few pupae have formed. the entire culture is dumped on a 1/4-inch-mesh hardware-cloth sieve, which rests on a stool, as indicated in figure 1. The oats should be spread evenly, 1 to 2 inches deep, and a 2-inch margin of exposed mesh should be left to prevent escape of the maggots up the sides. The stool is equipped with an inverted pyramidal funnel, which diverts the maggots into a small pail as they fall from the sieve. Aeration and desiccation of the medium and light from above cause practically every larvae to crawl through the sieve. A few moist,

(*Turn to Page* 119)

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News.....

Uncle Sam Chemical Expands

Uncle Sam Chemical Co., 329 E. 29th St., New York, has taken over the fifth floor of the building at that address, adding about 10,000 square feet of floor space and doubling production capacity. Additional items are now being made including rug shampoo, several new moth preventives and newly developed polishes. All of these items will be described, along with about fifty others, in an illustrated catalog which will be ready for distribution among sanitary chemical jobbers early this month.

Sell "Fly Hootch" Plant

The equipment, trade mark and formulas for the firm manufacturing a liquid household insecticide called "Fly Hootch" in Springmont, Reading, Pa., was sold at auction, October 24. Thomas Davis & Son, Reading, Pa., were the auctioneers.

Sanitary Distributors Meet

The regular monthly meeting of the Affiliated Sanitary Supply Distributors of Chicago was held in the Old Town Room of the Sherman Hotel, on Monday, October 24th. Following dinner the meeting was given over to a round table discussion on the subject of "Direct Competition of Manufacturers." This was the first meeting at which the new president, A. J. Dushek, presided. Mr. Dushek succeeds Charles E. Krebs whose term of office expired with the September meeting.

Strike at Holcomb Plant

The plant of J. I. Holcomb and Co., Indianapolis, has been tied up for the past month in a strike of employees which followed difficulties with a trucking concern. The strike was called in spite of the fact that the Holcomb concern has an agreement with the American Federation of Labor. The plant has been picketed and there have been a number of cases of violence affecting loyal workers, although office workers have been allowed to come and go peacefully. The labor board is at present working on the case but no decision has yet been announced.

Iran Co. Offers "Cedacote"

Iran Co., 309 Main Street, Orange, New Jersey, is mailing a folder describing its moth repellent product "Cedacote." This product is a dry compound said to consist of crushed red cedar wood reinforced by an additional quantity of cedar oil. Mixed with water to a plastic consistency, it may be applied with brush or trowel to the surface of closet linings. The cedar odor may be renewed by spraying with cedar oil once or twice a year. "Cedacote" is marketed by paint and hardware stores and building supply yards.

Dr. Dreyfus Back in U. S.

Dr. William Dreyfus of West Disinfecting Co., L. I. City, N. Y., arrived in New York, October 29, after an extended visit to his European home at Oberendigen, Switzerland. In a card mailed to the editors of *Soap* from Oberendigen, before his departure, he advised that he has made a remarkable recovery in health and will return to his duties in the best of shape.

Baumstark with Lanvoix

Harry A. Baumstark, formerly with Monsanto Chemical Co., has been appointed St. Louis representative for Lanvoix Chemical Co. Lanvoix, whose main office and laboratory is in Chicago, specializes in aromatic products for soaps, disinfectants, insecticides, etc.

Plant Derris in Formosa

The South Formosan Derris Co. has recently been established in Formosa to engage in raising derris on a commercial basis. A section of 140 acres is at present under cultivation and 320 additional acres are being prepared for future planting. It is estimated that output per acre will average about 1,450 pounds of dried roots. The Rotenone content of roots now under cultivation is stated to average between six and nine per cent.

Govt. Issues I. & D. Standards

The National Bureau of Standards of the U. S. Dept. of Commerce, Washington, has just issued printed copies of the new commercial standards for insecticides and disinfectants which were accepted by the industry last June as official standards. The pamphlets are five in number, designated as follows:

Liquid Hypochlorite Disinfectant, Deodorant and Germicide, CS68-38

Pine Oil Disinfectant, CS69-38

Coal Tar Disinfectant (Emulsifying Type), CS70-38

Cresylic Disinfectants, CS71-38

Household Insecticide (Liquid Spray Type), CS72-38.

A quantity of the new booklets will be ordered by the executive office of the National Association of Insecticide and Disinfectant Manufacturers, to be distributed to the membership at cost. The price to members will be 3c per copy, plus postage.

Windsor Introduces "Glide"

Windsor Wax Co., New York, has just put on the market a new powdered dance wax under the name "Glide." When applied to the floor it is said to allow freedom of motion without slipping, and to eliminate caking and dusting. It is packed in an American Can designed to conform with the balance of the "Windsor" line. Besides its dance floor use, it is also recommended for use on shuffle boards.

Public Hearing on Drug Act

An informal public hearing to consider proposed regulations for the enforcement of the new Federal Food, Drug and Cosmetic Act will be held at 10 a.m., November 17th in the Department of Agriculture south

Zonite Buys Dri-Brite, Inc.

Zonite Products Corp., New York, has recently taken over Dri-Brite, Inc. of St. Louis, and will operate this concern as a subsidiary of Zonite Products Corp. H. R. Hitchcock, formerly general manager of A. S. Boyle Co., has been elected vice-president and general manager of Dri-Brite Co. R. R. Wason, president of Zonite Products Corp., will act also as president of the newly acquired company. Ray Thorburn, formerly connected with A. S. Boyle Co., has been placed in charge of production.

Dri-Brite Co. manufactures the following products: "Dri-Brite" liquid wax; "Dri-Brite" super-paste wax; "Dri-Brite" magic floor cleaner; "Dri-Brite" new cleaner;; "Dri-Brite" super-foam upholstery cleaner; "Dri-Brite" furniture polish; and "Dri-Brite" once over auto polish. Zonite's present line of products includes, besides "Zonite," "Larvex" mothproofer, paradichlorobenzene crystals and "Annette's" dry powder cleaner.

For the time being, all operations of Dri-Brite, Inc. will be conducted from their plant at St. Louis. The Dri-Brite sales organization will be expanded as rapidly as the business warrants. At present, they have eleven salesmen. Advertising will be increased also.

Move N. Y. Diversey Branch

The New York City office of Diversey Corp., manufacturer of disinfectants and metal polishes, formerly at 131 West 42nd Street has recently been moved to new quarters in Rockefeller Center. Kendall Waters is in charge.

Schedule 3 P.C.O. Conferences

The mid-west and east Pest Control Operators' Conference will be held at Purdue University, January 16-20, 1939, with Prof. J. J. Davis again in charge. Another conference for operators on the west coast is scheduled for February 22-25 at the University of California. Berkeley. Prof. W. C. Herms will be in charge at the coast conference, with the California Pest Control Association as the sponsoring group. A conference for southern operators will be held at the University of Louisiana, Baton Rouge, later in the spring.

Among the winners in a recent amateur camera contest conducted by "Printers' Ink Monthly" was this novel shot "In Step," submitted by Charles P. McCormick, president, McCormick & Co., Baltimore. For other camera enthusiasts the technical details are: Eastman Duo-620 camera, SS. Pan film. 1/100 second at F:11

Soap Distributor Appointed

Carter Sanitary Supply Co., Cincinnati, manufacturer of soaps and disinfectants, has appointed Tri-State Sanitary Supply Co., 261 Broadway, to act as sole distributor for the Carter line in New York City.

Kitchen Deodorant

An agent for removing fish odor in kitchens and stores consists of a solid mixture of formaldehyde, sodium silicate and a porous material such as chalk or kieselguhr. Percy L. Siljan. German Patent No. 659,-816; through *Chem. Abs.*

Sherwood Petroleum Moves

Sherwood Petroleum Co. and its subsidiaries moved their offices on November 1st from Bush Terminal, Brooklyn to Englewood, N. J. The phone number at the new address is Englewood 3-5770.

Lambert Earnings Higher

Lambert Co., New York, shows a net profit of $1,090,428, equal to $1.46 per share on 746,371 capital shares outstanding for the nine months ended on Sept. 30th as compared with $1,082,780 or $1.45 for the same period in 1937. The net profit for the September quarter was $477,101 or 64c per share as compared with $430,719 or 58c a share for the same quarter in 1937.

Rotenone Colorimetrically

Of the 3 methods of determining rotenone in use at present, namely, crystallization in the cold from ether, polarimetric, and colorimetric, the colorimetric seems to be the most specific and the best suited when a large number of determinations must be made. The other 2 methods may be retained as control methods. S. Schonberg. Compt. rend. 17th Congr. chim. ind., Paris 1937, 947-52; through *Chem. Abs.*

Magnus to Show Dispensatories

An exhibit of old dispensatories will be opened shortly in the main lobby of the new building of Magnus, Mabee and Raynard, Inc. at 16 Desbrosses Street, New York. The exhibit will include the English Dispensatory of 1722 by Dr. John Quincy as well as a number of American dispensatories dating back to 1810.

Essential Oil Firm Moves

Hijos De Francisco Navarro, New York, essential oils, formerly of 119 Nassau Street, has recently moved to new quarters at 150 Nassau Street.

Seek Exterminating Bids

The housing authority of the city of Syracuse, New York, has asked for bids from professional exterminators covering a rat eliminating job in five city blocks on which the housing authority will eventually build. S. M. Grimm, executive director of the housing authority, plans to complete rat elimination before demolition of present buildings is begun in order to prevent the rodents

Say You Saw It in Soap!

THE average business house receives a great many inquiries for its products or services every year which cannot be attributed to any special source. A vast majority of these probably originate from some form of advertising but, due to the general tendency toward not mentioning the names of publications, cannot be directly traced.

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The Publishers

Insecticide-Disinfectant Meeting December 5-6 in New York

THE twenty-fifth annual meeting of the National Association of Insecticide & Disinfectant Manufacturers will be held in New York on December 5 and 6 at the Hotel Biltmore. This fact was announced following a regular quarterly meeting of the Board of Governors of the Association at the Biltmore on October 3rd. The Board also decided that the 1939 mid-year meeting would be held at the same hotel in New York on June 5th and 6th. John Powell of John Powell & Co. will be in charge of general convention arrangements for both meetings as chairman of the convention committee. W. J. Zick of Stanco, Inc. will head the program committee. Entertainment arrangements will be under the guidance of L. J. LaCava of the Continental Can Co. and Joseph B. Magnus of Magnus, Mabee & Reynard, Inc. The December meeting will be preceded by the annual meeting of the Board of Governors on Sunday, Dec. 4th. New York was selected as the meeting place for the 1939 mid-year convention after a vote among the membership. It was pointed out that by holding the June, 1939, meeting in New York, an opportunity would be given to members from distant points to visit the World's Fair at the same time.

The Board of Governors at its Oct. 3rd meeting discussed the 1939 prospective legislative situation in some detail and appropriated funds to be placed at the disposal of the legislative committee headed by C. L. Fardwell of McCormick & Co., Baltimore, to cover 1939 expenses of the committee. The board also voted to cooperate with the Agricultural Insecticide & Fungicide Association in legislative matters wherever a matter of common interest might be involved. Other matters discussed included a model state insecticide and disinfectant law, the wages and hours law, the new federal food and drugs act, and a plan of cooperative publicity.

W. J. ZICK
heads the program committee

Those present at the meeting included President J. L. Brenn of the Huntington Laboratories, Inc., Huntington, Ind.; W. J. Zick of Stanco, Inc.; New York; H. W. Hamilton of the White Tar Co., Kearny, N. J.; W. J. Eddy of the Rochester Germicide Co., Rochester, N. Y.; Clarence Weirich of C. B. Dolge Co., Westport, Conn.; Gordon Baird of Baird & McGuire, Inc., Holbrook, Mass.; N. J. Gothard of Sinclair Refining Co., East Chicago, Ind.; John Curlett of McCormick & Co., Baltimore; John Powell of John Powell & Co., New York; Henry A. Nelson of the Chemical Supply Co., Cleveland; C. L. Fardwell of McCormick & Co.; Dr. Alfred Weed of John Powell & Co.; L. J. LaCava of the Continental Can Co., and Ira P. Mac Nair of the Mac Nair-Dorland Co.

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Dalmatian Pyrethrum Crop

The Jugoslavian pyrethrum crop is expected to be about thirty per cent smaller for 1938 than that reported for the previous year. Current production is estimated at about 350 tons of dried flowers. Up to September first none of the 1938 crop had been sold to American buyers according to the American consul at Zagreb. The quality of the new crop is reported to be satisfactory but complaints on this score in recent years have made American buyers somewhat wary of this source. The principal markets now supplied by Dalmatian pyrethrum are said to be western Europe and China.

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Chicago Drug Luncheon

The Chicago Drug and Chemical Association held its first meeting of the fall season at the Chicago A.A. on September 29th. Another meeting of the association was held on October 27th and according to plans announced at the time *Soap* went to press, moving pictures of deep sea fishing near the Bahama Islands were to be shown.

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P.C.A. Selects N. Y. for 1939

Official announcement has been made that the Seventh Annual Convention of the National Pest Control Association will be held in New York, October 23, 24, 25, 1939. A committee composed of Irving Sameth, Irving Josephson, and William Buettner investigated the hotel situation and by unanimous decision Hotel Pennsylvania was established as the headquarters for the convention. More details as to committee assignments will be published in the December issue of *Soap*.

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Restrain Jiffy Cleaning Fluid

Jiffy Cleaning Fluid Co., New York, has just signed a Federal Trade Commission stipulation agreeing to cease representing that its "Jiffy" cleaning fluid will not leave rings or marks on fabrics when such is not a fact. It is charged by the Commission that when the company's product is used on fabrics dyed with fugitive coloring materials it causes the colors to run and may result in the appearance of a ring.

building, Independence Avenue between 12th and 14th Streets Southwest, Washington, D. C. The hearing has been called so that the department may have the benefit of suggestions and criticisms from interested parties before regulations for the enforcement of the act are definitely formulated.

Determination of Phenol

W. E. Kemp of the sanitary research laboratory of the Canadian National Railways, in a recent letter to the editor of SOAP reports the following method for determining the phenol content in liquid insecticides which he states has given rapid and reliable results in this laboratory. It is not claimed that the method is new or entirely original, but it is thought that it may be useful to other chemists engaged in work of this type.

Estimation:

In the form of tribromophenol.

Solutions:

1—Bromide-bromate solution 3/10 Normal in about 1/10 normal NaOH. Prepared by running bromine into hot excess sodium hydroxide, boiling resulting mixture 30 minutes and filtering. Bromide-bromate in the proportion of 5 moles to 1 is formed according to the following equation:

$6NaOH+3Br_2=5NaBr+NaBrO_3+3H_2O$

Standardize the bromine solution against sodium thiosulfate.

2—20 per cent potassium iodide.

Method:

Take 12 gms. of the spray (containing not more than 3 per cent phenol) in a 400 ml. flask. add 25 c.c. alcohol. mix thoroughly, then 100 c.c. of 25 per cent acetone swirl 5 minutes. Add to flask 100 c.c. of bromide-bromate solution 25 c.c. of cencentrated HCl mix well then add 25 c.c. of the potassium iodide and titrate the free iodine with sodium thiosulfate in the usual manner.

Calculation:

As bromine combines with phenol in the following manner: $C_6H_5OH+6\ Br=C_6H_3Br_3O+3\ HBr$. —one part of bromine corresponds to .0.1958 of phenol. Each cubic centimeter of the standard bromide-bromate solution contains .02397 gms. of available bromine which is equivalent to .00469 gms. phenol therefore per cent phenol =

$$\frac{100-\text{no. c.c. excess added} \times .00469 \times 100}{12}$$

Sameth Heads Pest Control Assn.

H. G. IRVING SAMETH of Sameth Exterminating Co., New York was named president of the National Pest Control Association at the sixth annual convention held Oct. 24, 25 and 26 at the Hotel Fontenelle, Omaha. Other officers selected include as regional vice-presidents, Walter S. McCloud, W. B. McCloud & Co., Chicago; Otto Orkin, Orkin Exterminating Co., Atlanta; L. A. McKenna, A. C. Exterminating Service, Cleveland; Wilbur F. Smith, Alderman Co., Pasadena; Charles W. Houghton, Safety Humidant Co., Boston. William O. Buettner, Oscar G. Buettner & Son, Brooklyn was reelected secretary. The new treasurer is George R. Elliott, Ransford Insecticide Co., Worcester, Mass. New directors, elected for three-year terms are Alfred Zimmern, Temple Lumber Co., Dallas; Walter B. Hill, Knox-Ant Corp., Memphis; Albert M. Akers, Rose Exterminator Co., Cleveland; F. E. Bohman, Bohman Brothers, Hartford; Martin Meyer, Theodore Meyer, Est., Philadelphia; John P. Linn, Industrial Pest Control Co., Omaha; Jesse M. Miller, J. M. Miller Pest Control System, Hollywood, Cal. P. Henry Maheu, Mysterious Chemical Co., Montreal, was reelected Canadian representative.

H. G. Irving Sameth

Clinics on various exterminating problems were again a prominent feature of the meeting program. Other subjects considered included telephone directory advertising, sales promotion methods and industry ethics. The first night of the convention was Products' Night with attention focussed on the exhibits of suppliers who were given an opportunity to explain various features of their displays. On Tuesday night, October 25, a stag party was held, and on the following evening the whole convention party assembled for the annual banquet, entertainment and dance.

Merit Award to "Bac-Trol"

Baird & McGuire, Inc., Holbrook, Mass., have just received official recognition in the form of a merit award by the Associated Industries of Massachusetts, on the introduction of their "Bac-Trol" disinfectant. The award cites the new Baird & McGuire product as "worthy of the high standards in research, craftsmanship and consumer satisfaction inherent in Massachusetts industry."

Evaluation of Wax Polishes

(*From Page* 99)

to a sufficient degree as to cover all general requirements. It should increase in gloss after application and during the early course of its wear. The emulsion preferably should not have any odor. It should, likewise, be easy to apply and be free from streaks and deposit itself in a smooth and even film. However, the author firmly expects to have a long white beard before all of this comes true and such a product is available on the market at a price which would permit it to sell in competition.

from migrating to other neighborhoods. The cost has been estimated at about $1000 for each block. It is planned to work on one block at a time and complete extermination is expected to take about two weeks.

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Increase Derris Plantings

It is estimated for the year 1938 that the area devoted to derris plantings in the Philippines may be increased to 2,000 and possibly 2,500 hectares as compared with 1,564 hectares in 1937. This includes private plantings as well as those with government cuttings.

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West Signs FTC Stipulation

West Disinfecting Co., Long Island City, N. Y., manufacturer of "CN" disinfectant, has entered into stipulation with the U. S. Federal Trade Commission agreeing to discontinue representing that "CN" will kill germs generally, protect one against germs or disease, repel insects, and keep the home "safely" clean.

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Tufts of Hercules Ill

Bronson B. Tufts, for several years in charge of preparation of advertising on pine oil and rosin for Hercules Powder Co., Wilmington, has been confined in the Homeopathic Hospital in that city for several weeks. He is expected to return to his desk sometime this month.

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Memphis P.C.A. Meets

The Memphis Pest Control Association held a meeting at DeVoy Hotel, Memphis, October 3. The matter of classified telephone directory listings was given considerable discussion with unanimous decision being for the single major listing to be Pest Control. In order to allow for a transitory stage, the next telephone directory will carry the heading "Exterminators — Pest Control" but in the following edition the term "Exterminators" will be simply listed as a heading but become distinctly a cross reference heading in that no names are to appear but a reference made to "See Pest Control."

Associated Exterminators Meet

A regular meeting of the Associated Exterminators and Fumigators of New York was held at headquarters, 7 East 44th Street, New York, October 18. The feature of the evening was the showing of a talking motion picture describing the mining and processing of "Celite," a product of Johns Manville that is being utilized as a filler for insecticides. C. J. O'Neill, staff engineer of Johns Manville gave a talk as to the possibilities of "Celite" as a filler, with sodium fluoride, pyrethrum, etc. The next meeting of the association will be held at headquarters on Tuesday, November 22 when the guest speaker is to be Professor J. J. Davis of Purdue University. The Association announces the election to membership of Active Exterminating Co. and American Exterminating Co.

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Coutlee Outlines Ad Procedure

Douglas W. Coutlee, director of advertising for Merck & Co., Rahway, N. J., spoke before a recent meeting of the Direct Mail Advertising Association in Chicago and outlined the procedure followed by Merck & Co. in its advertising. Mr. Coutlee advised that Merck uses an experienced chemical writer in the publication of booklets and pamphlets and for advertising in magazines and all statements contained must conform with authoritative published literature.

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Rearing of Houseflies

(*From Page* 109)

crumpled paper towels in the pail form a satisfactory refuge in which the maggots pupate.

After pupation has been completed the pupae are sorted by passing them through two grain fanning-mill screens having openings 6/64 by 3/4 inch and 7/64 by 3/4 inch. The abnormally large pupae, which are retained by the larger screen, and the runty pupae, which pass through the smaller screen, are discarded. The main lot of pupae are uniform and clean. Any number of pupae may be segregated with a very good chance of obtaining approximately equal numbers of males and females.

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Pyrethrum Evaluation

(*From Page* 93)

Summary

Results obtained by the use of mosquito larvae as test insects on pyrethrum extracts in the manner described show that such a method gives a reasonably reliable indication of the toxic values of the flowers and that the values thus obtained will usually indicate high or low pyrethrin content of the flowers. The correlation between the toxicity and the percentage of Pyrethrin I and total pyrethrins is about equal except in samples with unusually high or low proportions of Pyrethrin I. There is evidence also that Pyrethrin I is more toxic to the larvae than Pyrethrin II, at least when applied by this method. The toxicity as obtained by a single test in duplicate, is somewhat less reliable than the toxicity based on the average percentage of larvae killed in five tests made on different days. However, one test in duplicate is sufficiently accurate to indicate samples of high or low toxicity, and for this purpose the method has been found to be of value in handling the large number of samples involved in developing strains of high pyrethrin content.

Literature Cited

[1] Campbell, F. L., Sullivan, W. N., and C. R. Smith. 1933. The relative toxicity of nicotine, anabasine, methyl anabasine, and lupinine for culicine mosquito larvae. *Jour. Econ. Ent.* 26: 500-509.

[2] Culbertson, R. E. 1936. Pyrethrin I content of strains of *Chrysanthemum cinerariaefolium*. Proc. Amer. Soc. Hort. Scien. 34: 590-91.

[3] Hartzell, A., and Wilcoxon, F. 1936. Relative toxicity of Pyrethrins I and II to insects. Contributions from Boyce Thompson Inst. Vol. 8, No. 3; 183-88.

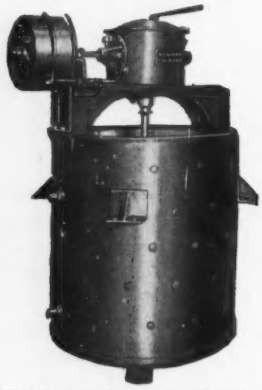
[4] Seil, H. A. 1934. Estimation of pyrethrins. *Soap* 10, No. 5, 89.

[5] Ueno, S. Methods for the determination of toxic principles contained in pyrethrum and its products. Manuscript.

[6] Wallace, H. A., and Snedecor, G. W. 1931. Correlation and machine calculation. Iowa State College of Agri. and Mech. Arts. Official publication Vol. 30, No. 4, June 24.

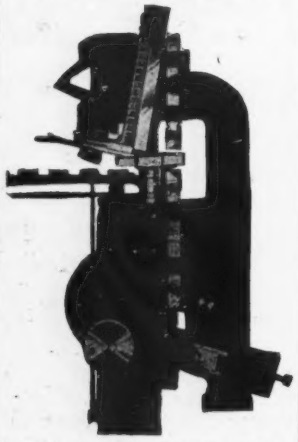
Special Offerings of

New CRUTCHERS



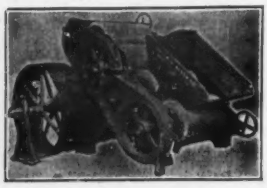
This Newman brand new, all steel, steam jacketed soap crutcher will crutch any kind of soap. We also build another crutcher especially adapted for laundry soap.

Automatic JONES PRESS



Small size fully automatic Jones toilet soap press. Capacity 150 to 200 small cakes per minute. A real buy at an attractively low price. Has been completely rebuilt in our shops.

H-A SOAP MILL



This 4-roll granite toilet soap mill is in A-1 shape. Latest and largest size rolls. Priced for quick sale.

New and Rebuilt

SOAP MACHINERY

by

NEWMAN

We carry a complete line of equipment for the soap and sanitary products industry. All used equipment is rebuilt in our own shops and is guaranteed to be in first class condition. All new equipment that we manufacture such as crutchers, frames and cutting tables is of the finest material and workmanship. You can buy with confidence from Newman.

USED SPECIALS

For the Soap, Chemical, Cosmetic and Allied Trades

H-A, 1500, 3000, 4000, 5000 lbs. capacity. Steam Jacketed Crutchers.

Dopp Steam Jacketed Crutchers, 1000, 1200, 1500 lbs. and 800 gals. capacity.

Ralston Automatic Soap Presses.

Scouring Soap Presses.

Empire State, Dopp & Crosby Foot Presses.

2, 3, 4, 5 and 6 roll Granite Toilet Soap Mills.

H-A 4 and 5 roll Steel Mills.

H-A Automatic and Hand-Power slabbers.

Proctor & Schwartz Bar Soap Dryers.

Blanchard No. 10-A and No. 14 Soap Powder Mills.

J. H. Day Jaw Soap Crusher.

H-A 6, 8 and 10 inch Single Screw Plodders.

Allbright-Nell 10 inch Plodders.

Filling and Weighing Machine for Flakes, Powders, etc.

Steel Soap frames, all sizes.

Steam Jacketed Soap Remelters.

Automatic Soap Wrapping Machines.

Glycerin Evaporators, Pumps.

Sperry Cast Iron Square Filter Presses, 10, 12, 18, 24, 30 and 36 inch.

Perrin 18 inch Filter Press with Jacketed Plates.

Gedge-Gray Mixers, 25 to 6000 lbs. capacity, with and without Sifter Tops.

Day Grinding and Sifting Machinery.

Schultz-O'Neill Mills.

Day Pony Mixers.

Gardiner Sifter and Mixer.

Proctor & Schwartz large roll Soap Chip Dryers complete.

Doll Steam Jacketed Soap Crutchers, 1000, 1200 and 1350 lbs. capacity.

Day Talcum Powder Mixers.

All types and sizes—Tanks and Kettles.

Ralston and H-A Automatic Cutting Tables.

Soap Dies for Foot and Automatic Presses.

Broughton Soap Powder Mixers.

Williams Crutcher and Pulverizer.

National Filling and Weighing Machines.

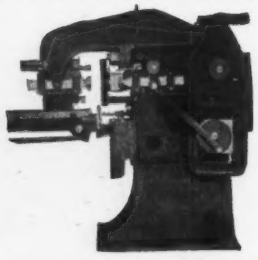
Send us a list of your surplus equipment—
we buy separate units or complete plants.

Newman Tallow & Soap Machinery Co.

1051 W. 35th St., Chicago, Illinois

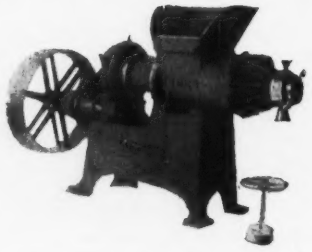
Our forty years soap experience can help solve your problems.

JONES AUTOMATIC



4 Jones Automatic combination laundry and toilet soap presses. All complete and in perfect condition.

SINGLE SCREW SOAP PLODDER



Single screw soap plodders with 6, 8, 10 or 12 inch screws. All completely rebuilt and unconditionally guaranteed.

Classified Advertising

Classified Advertising—All classified advertisements will be charged for at the rate of ten cents per word, $2.00 minimum, except those of individuals seeking employment where the rate is five cents per word, $1.00 minimum. Address all replies to Classified Advertisements with Box Number, care of *Soap*, 254 West 31st St., New York.

Positions Wanted

Soapmaker—Perfumer—Chemist; life-long experience toilet and laundry soap manufacture. Salary reasonable. Chicago district preferred. Address Box No. 486, care *Soap*.

Soapmaker and Chemist—Thoroughly adept in the manufacture of the entire line of laundry, toilet, textile and potash soaps, in analytical work, glycerine recovery, calculation details, etc., desires to change. Address Box No. 482, care *Soap*.

Salesman—Selling soaps and disinfectants, etc., to jobbers and hardware stores, wishes side-line. Address Box No. 487, care *Soap*.

Soap Chemist: Man with wide experience in practical soap plant chemistry and production methods, desires connection modern plant. Services available part time if desired. For further details, address Box No. 476, care *Soap*.

Oil Refining: Man with many years experience in practical soap and oil plant work desires new connection. Thoroughly familiar Austrian process affording marked savings in refining vegetable oils. Also expert in soaps, fatty acids, etc. Address Box No. 475, care *Soap*.

Soapmaker—Assistant, Soap-boiler: Six years' experience in manufacturing toilet and laundry soap. Best references. Salary moderate. Address Box No. 488, care *Soap*.

Chemist—Young man, 10 years' experience in soaps, soap specialties, waxes, polishes, etc. Raw material, control, production and research. Knows soap line thoroughly. Address Box No. 477, care *Soap*.

Chemist, experienced in the manufacture of polishes, (pastes and self-polishing) soft soaps, shoe dressings, disinfectants, insecticides and many other specialties. Production, research or sales. Address Box No. 491, care *Soap*.

Soapmaker — perfumer, chemist — long experienced in profitable laundry and toilet soap manufacture. Salary reasonable. Address Box No. 478, care *Soap*.

Raw Materials and Equipment

NOTE: This is a classified list of the companies which advertise regularly in SOAP. It will aid you in locating advertisements of raw materials, bulk and private brand products, equipment, packaging materials, etc., in which you are particularly interested. Refer to the Index to Advertisements, on page 126 for page numbers. *"Say you saw it in SOAP."*

ALKALIES

John A. Chew, Inc.
Columbia Alkali Co.
T. G. Cooper & Co.
Diamond Alkali Co.
Dow Chemical Co.
Eastern Industries
Hooker Electrochemical Co.
Innis, Speiden & Co.
Niagara Alkali Co.
Solvay Sales Corp.
Jos. Turner & Co.
Warner Chemical Co.
Welch, Holme & Clark Co.

AROMATIC CHEMICALS

American-British Chemical Supplies
Aromatic Products, Inc.
Compagnie Parento
Dodge & Olcott Co.
Dow Chemical Co.
P. R. Dreyer Inc.
E. I. du Pont de Nemours & Co.
Felton Chemical Co.
Firmenich & Co.
Fritzsche Brothers, Inc.
General Drug Co.
Givaudan-Delawanna, Inc.
Magnus, Mabee & Reynard, Inc.
Monsanto Chemical Co.
Norda Essential Oil & Chemical Co.
Orbis Products Corp.
Schimmel & Co.
Solvay Sales Corp.
Ungerer & Co.
Van Ameringen-Haebler, Inc.

BULK AND PRIVATE BRAND PRODUCTS

Associated Chemists, Inc.
Baird & McGuire, Inc.
Buckingham Wax Corp.
Candy & Co.
Chemical Supply Co.
Clifton Chemical Co.
Davies-Young Soap Co.
Federal Varnish Co.
Fuld Bros.
Harley Soap Co.
Koppers Co.
Kranich Soap Co.
Philadelphia Quartz Co.
John Powell & Co.
Geo. A. Schmidt & Co.
Shawmut Specialty Co.
Sweeping Compound Mnfrs. of N. Y.
Uncle Sam Chemical Co.
T. F. Washburn Co.
White Tar Co.
Windsor Wax Co.

CHEMICALS

American-British Chemical Supplies
John A. Chew, Inc.
Columbia Alkali Co.
T. G. Cooper & Co.
Diamond Alkali Co.
Dow Chemical Co.
E. I. du Pont de Nemours & Co.
Eastern Industries
Hooker Electrochemical Co.
Industrial Chemical Sales Div.
Innis, Speiden & Co.
Monsanto Chemical Co.
Niagara Alkali Co.
Philadelphia Quartz Co.
Rohm & Haas Co.
E. M. Sergeant Pulp & Chem. Co.
Solvay Sales Corp.
Standard Silicate Co.
Jos. Turner & Co.
Victor Chemical Works
Warner Chemical Co.
Welch, Holme & Clark Co.

COAL TAR RAW MATERIALS

(Cresylic Acid, Tar Acid Oil, etc.)

American-British Chemical Supplies
Baird & McGuire, Inc.
T. G. Cooper & Co.
Innis, Speiden & Co.
Koppers Co.
Monsanto Chemical Co.
Reilly Tar & Chemical Co.
White Tar Co.

COLORS

Fezandie & Sperrle
Pylam Products Co.

CONTAINERS and CLOSURES

American Can Co. (Tin Cans and Steel Pails)
Anchor-Hocking Glass Corp. (Closures & Bottles)
Continental Can Co. (Tin Cans)
Crown Cork & Seal Co. (Closures)
Hazel-Atlas Glass Co. (Bottles and Jars)
National Can Co. (Cans)
Standard Container, Inc. (Cans and Closures)
Sutherland Paper Co. (Packages)
Williams Sealing Corp. (Closures)
Wilson & Bennett Mfg. Co. (Steel Pails and Drums)

DEODORIZING BLOCK HOLDERS

Clifton Chemical Co.
Fuld Bros.
National Sanitary Chemical Co.

ESSENTIAL OILS

Aromatic Products, Inc.
Compagnie Parento
Dodge & Olcott Co.
P. R. Dreyer Inc.
Felton Chemical Co.
Firmenich & Co.
Fritzsche Brothers, Inc.
Leghorn Trading Co.
Magnus, Mabee & Reynard, Inc.
Norda Essential Oil & Chemical Co.
Orbis Products Corp.
Schimmel & Co.
Ungerer & Co.
Van Ameringen-Haebler, Inc.

INSECTICIDES, SYNTHETIC

Kessler Chemical Co.
Rohm & Haas Co.

(*Continued on page* 124)

Miscellaneous

Wanted—Proctor & Schwartz four or five fan soap chip dryer with 48" diameter cooling roll for cash. Must be in good condition. Address Box No. 489, care *Soap.*

Floor Wax—Not only is it priced below all competitive waxes but an analysis and test will prove its superior qualities as to durability, extreme waterproofness, lustre and non-slipperiness. A product for the most critical buyer of quality and price. Inquiries invited. Fox Lake Chemical Co., Fox Lake, Illinois.

Carpet Beetles, and other living insects for experimental purposes. Reared in quantities. H. Scudder, Entomology Dept. Cornell University, Ithaca, N. Y.

Non-Skid No-Rubbing Wax—A remarkable product. A large board of education reported it less slippery than any other wax. A national chain of stores had it approved by their insurance company. Sample it yourself. Low prices. Twi-Laq Chemical Co., 221 Sullivan St., Brooklyn, N. Y.

Volcanic Ash of all colors and grades; samples and prices upon request. Mid-Co. Products Company, Kansas City, Missouri.

Floor Brushes—We manufacture a very complete line. Catalogue sent upon request. Flour City Brush Company, Minneapolis, Minn., or Pacific Coast Brush Co., Los Angeles, Calif.

Complete Soap Plant Equipment for Sale: Proctor soap chip dryer; automatic soap press; wrapping machine: 4 roll stone mills; foot press; plodders 6", 8", 10"; soap boiling kettles; 6 knife chipper; two-way cutting table; frames; filter presses; crutchers; mixers, boilers. Stein Equipment Corp., 426 Broome St., New York City.

Rex No Rubbing Wax—Outwears most floor waxes—100% carnauba wax content. Private label if desired. Priced low. Rex Paint Co., 219 Congress Ave., New Haven, Conn.

Sense Appeal—Texol Self-Polishing Wax is a waxier wax embodying rich luster and an appealing, refreshing odor. All No. 1 Carnauba wax-content. Inquiries invited. Texol Chemical Works, Clinton, Massachusetts.

Formula Wanted: A poison to rats only, safe to use, paste, attractive to rats, will not harden or spoil; sample appreciated. Address Box No. 483, care *Soap.*

Wax—Guaranteed water-proof wax—dries to high lustre. Best buy of the year. Special price to jobbing trade only. Write now for samples and prices. Empire Chem. Products Co., 12 Longworth St., Newark, N. J.

Raw Material and Equipment Guide

(*Continued from page* 122)

NOTE: This is a classified list of the companies which advertise regularly in SOAP. It will aid you in locating advertisements of raw materials, bulk and private brand products, equipment, packaging materials, etc., in which you are particularly interested. Refer to the Index to Advertisements, on page 126 for page numbers. *"Say you saw it in SOAP."*

MACHINERY

J. H. Day Co. (Mixers, Sifters, Mills)
Anthony J. Fries (Soap Dies)
Houchin Machinery Co. (Soap Machinery)
Huber Machine Co. (Soap Machinery)
Ingersoll Steel & Disc. Div. Borg-Warner Corp.
International Nickel Co. (Monel Metal)
R. A. Jones & Co. (Automatic Soap Presses and Cartoning Machinery)
Koppers Company (Coal Tar Plants, Power Plants, Valves, Castings, Pipe, Tanks)
Proctor & Schwartz (Dryers)
C. G. Sargent's Sons Corp. (Dryers)
Sprout, Waldron & Co. (Mixing, Conveying, etc)
Viking Pump Co. (Pumps)
Wurster & Sanger (Soap, Oil and Glycerin)

MACHINERY, USED

Consolidated Products Co.
Newman Tallow & Soap Machinery Co.

MISCELLANEOUS

American Standard Mfg. Co. (Wax Applicator)
Anchor-Hocking Glass Corp. (Metal Caps)
T. G. Cooper & Co. (Waxes)
Dicalite Co. (Insecticide Carrier, Filtering Materials, Abrasives)
Dobbins Mfg. Co. (Pails, Mop Wringers, etc.)
Dow Chemical Co. (Germicides, Agricultural Insecticides, Fumigants)
Hercules Powder Co. (Pine Oil and Rosin)
Industrial Chemical Sales Div. (Decol. carbon, Chalk)
Innis, Speiden & Co. (Fumigants and Waxes)
Koppers Company (Coal, Coke, Roofing Materials)
Lenape Trading Co. (Waxes)
Pennsylvania Refining Co. (White Oils)
Pylam Products Co. (Lathering Agent)
S. Schwabacher & Co. (Naphthenic Soaps, White Mineral Oils)
Victoria Paper Mills Co. (Paper Accessories)

OILS AND FATS

T. G. Cooper & Co.
Eastern Industries
Independent Mfg. Co.
Industrial Chemical Sales Div.
Leghorn Trading Co.
Murray Oil Products Co.
Newman Tallow & Soap Machinery Co.
Orbis Products Corp. (Stearic Acid)
E. M. Sergeant Pulp & Chemical Co.
Wecoline Products Co.
Welch, Holme & Clark Co.

PARADICHLORBENZENE

John A. Chew, Inc.
Dow Chemical Co.
E. I. du Pont de Nemours & Co.
Hooker Electrochemical Co.
Monsanto Chemical Co.
Niagara Alkali Co.
Solvay Sales Corp.
Jos. Turner & Co.

PERFUMING COMPOUNDS

Aromatic Products, Inc.
Compagnie Parento
Dodge & Olcott Co.
P. R. Dreyer Inc.
Felton Chemical Corp.
Firmenich & Co.
Fritzsche Brothers, Inc.
General Drug Co.
Givaudan-Delawanna, Inc.
Magnus, Mabee & Reynard, Inc.
Norda Essential Oil & Chemical Co.
Orbis Products Corp.
Schimmel & Co.
Ungerer & Co.
Van Ameringen-Haebler, Inc.

PETROLEUM PRODUCTS

Atlantic Refining Co.
Pennsylvania Refining Co.
S. Schwabacher & Co.
L. Sonneborn Sons.

PYRETHRUM AND DERRIS PRODUCTS

Insect Flowers and Powder, Pyrethrum Extract, Derris Products

Associated Chemists, Inc.
Derris, Inc.
Hammond Paint & Chem. Co.
Lenape Trading Co.
S. B. Penick & Co.
R. J. Prentiss & Co.
McCormick & Co.
McLaughlin, Gormley, King Co.
John Powell & Co.

SILICATES

Cowles Detergent Co.
E. I. du Pont de Nemours & Co.
Philadelphia Quartz Co.
Standard Silicate Co.

SOAP DISPENSERS

Bobrick Mfg. Co.
Clifton Chemical Co.
Fuld Bros.
Presto Mfg. Co.

SPRAYERS

Breuer Electric Mfg. Co.
Dobbins Mfg. Co.
Fumeral Co.
Lowell Manufacturing Co.
Standard Container, Inc.

TRI SODIUM PHOSPHATE

John A. Chew, Inc.
E. I. du Pont de Nemours & Co.
Monsanto Chemical Works
Victor Chemical Works
Warner Chemical Co.

Professional Directory

STATEMENT OF OWNERSHIP

Statement of the ownership, management, circulation, etc., required by the Act of Congress of March 3, 1933, of Soap & Sanitary Chemicals, published monthly at New York, N. Y., for October 1, 1938.

State of New York, County of New York.

Before me, a Notary Public in and for the State and County aforesaid, personally appeared Ira P. MacNair, who, having been duly sworn according to law, deposes and says that he is the Editor of Soap & Sanitary Chemicals and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, MacNair-Dorland Company, Inc., 254 W. 31st St., N. Y. C.; Editor, Ira P. MacNair, 254 W. 31st St., N. Y. C.; Managing Editor, None; Business Manager, Grant A. Dorland, 254 W. 31st St., N. Y. C.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

MacNair-Dorland Co. Inc., 254 W. 31st St., N. Y. C.; Ira P. MacNair, 254 W. 31st St., N. Y. C.; Grant A. Dorland, 254 W. 31st St.,

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustee, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stocks, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the months preceding the date shown above is ——. (This information is required from daily publications only.)

IRA P. MacNAIR,
Editor.

Sworn to and subscribed before me this 22nd day of September, 1938.

Earl A. Ahern, Notary Public, Kings County, Clerk's No. 260, Register's No. 9076. Certificate Filed in New York County. Clerk's No. 109, Register's No. 9-A-91. Commission expires March 30, 1939.

Index to Advertisers

For product classification see pages 122 *and* 124

* For further details see announcement in 1938 SOAP BLUE BOOK

Every effort is made to keep this index free of errors, but no responsibility is assumed for any omission.

Tale Ends

WITH the fall convention season in full swing, manufacturers of insecticides, disinfectants and allied products point toward New York where the twenty-fifth annual meeting of the National Association of Insecticide & Disinfectant Manufacturers will be held on December 5th and 6th. Convention headquarters will be at the Hotel Biltmore.

* * *

Both this annual meeting and next year's June meeting are scheduled for New York, the particular attraction next summer of course being the New York World's Fair. It seems as though almost every association in the country is scheduling its 1939 convention in New York, and we have it over the direct wire that people who actually try to do business in New York are going to establish separate staffs of fair guides.

* * *

For those who may be interested in binders, — big enough to carry half a dozen copies of *Soap*, these are now available at $1.50 each, express prepaid. Some of our readers have requested them, and we are glad they think enough of the magazine to want to keep their back copies handy for reference. They are about as awkward looking as binders usually are, but do have the name of the magazine handsomely embossed on them. We understand, too, that for a slight additional charge the maker will add the reader's name in shiny gold (imitation).

* * *

Speaking of copies of *Soap*, it is surprising how many people there are who think, incorrectly, that they are subscribers. Just because you get an occasional sample copy doesn't mean that you are a full-fledged subscriber, entitled to a free copy of the next BLUE BOOK. The only way to enter that select circle is by paying the entrance fee of $3.00. If you are uncertain about your status, check up on it now!